

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

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## OFFICE OF DESIGN POLICY & SUPPORT INTERDEPARTMENTAL CORRESPONDENCE

**FILE** P.I. # 311000-, 311005-, 311400-, & **OFFICE** Design Policy & Support  
311410-  
NHIM0-0016-01 (092), NHIM0-0016-01 (131),  
NHIM0-0075-02 (177), & NH000-0016-01 (104)  
Bibb County  
GDOT District 3 - Thomaston **DATE** 3/22/2013  
I-16/I-75 Interchange at Macon

**FROM**  for Brent Story, State Design Policy Engineer

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED REVISED CONCEPT REPORT

Attached is the approved Revised Concept Report for the above subject project.

Attachment

**DISTRIBUTION:**

Bobby Hilliard, Program Control Administrator  
Genetha Rice-Singleton, State Program Delivery Engineer  
Glenn Bowman, State Environmental Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Ben Rabun, State Bridge Engineer  
Kathy Zahul, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Charles "Chuck" Hasty, State Materials Engineer  
Mike Bolden, State Utilities Engineer  
Paul Tanner, Asst. State Transportation Data Administrator  
Attn: Systems & Classification Branch  
Ken Thompson, Statewide Location Bureau Chief  
Tamaya Huff, State Pedestrian and Bicycle Coordinator  
Thomas Howell, District Engineer  
Bill Rountree, District Preconstruction Engineer  
Kerry Gore, District Utilities Engineer  
Clinton Ford, Project Manager  
BOARD MEMBER - 2nd Congressional District  
FHWA – attn: Rodney Barry, Georgia Division Administrator



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

Georgia Division

March 15, 2013

61 Forsyth Street SW  
Suite 17T100  
Atlanta, Georgia 30303  
Phone 404-562-3630  
Fax 404-562-3703  
Georgia.fhwa@fhwa.dot.gov

In Reply Refer To:  
HPE-GA

Keith Golden, P.E. Commissioner  
Georgia Department of Transportation  
One Georgia Center  
600 West Peachtree Street, NW  
Atlanta, GA 30308

Dear Commissioner Golden:

With respect to the proposed project concept to improve the operational efficiency and safety of the I-16/I-75, I-16/Spring Street, I-16/Second Street, and I-16/Coliseum Drive interchanges by adding capacity to both I-75 and I-16 in Bibb County; we have reviewed Revised Concept Report submitted for project numbers: NH000-0016-01(104), NHIM0-0016-01(092), NHIM0-0016-01(131), and NHIM0-0075-02(177).

With respect to the general concept and layout of the proposed project, the Georgia Department of Transportation (GDOT) has incorporated information on the scope of work required to meet the identified Need and Purpose within the proposed project area.

Based on the identified benefits to the project area and GDOT's documented conceptual stage information, the Federal Highway Administration (FHWA) Georgia Division Office concurs with GDOT's determination associated with the results of the Concept Report for the I-16/I-75 Interchange Reconstruction and Widening Project with additional follow-up items to address, for which some will require reference to revised traffic and a pavement evaluation.


FHWA has determined the following items to require additional review:

1. Page 12 notes that the approved programmed schedule shows construction in 2018 but the project years presented in other sections of the document note the timeframe to be 2016 – 2036. Please review and revise as appropriate.
2. Access to Spring Street is noted to be impacted in Phase 1 and in Phase 5. Please provide information on any limitations or criteria for completion of the phase work identified to ensure the access to Spring Street is adequately re-established.
3. Page 16 notes that the project work includes overlay for Spring Street. Please provide the depth of the overlay identified for Spring Street.
  - a. Please verify if the overall pavement design has been approved.
4. Please clarify if the reference to the pavement overlay on Spring Street is the minor exception referred to in the Potential Environmental Impacts of Proposed Revisions Section. If not, please explain what the minor exception is in reference to.

5. Please coordinate with the FHWA Structural Engineer on the acceptability of a design variance for freeboard at Bridge 12 and to evaluate the possibility of incorporating accelerated bridge construction to facilitate project completion.

Please provided follow-up to confirm that the items identified above have been addressed prior to moving forward with final plans. If you have any questions or comments, please contact Christy Poon-Atkins, P.E. at 404-562-3638.

Sincerely,



Rodney N. Barry, P.E.  
Division Administrator

Attachment

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
REVISED PROJECT CONCEPT REPORT**

Project Numbers

NHIM0-0016-01 (092)	P.I. Number 311000
NHIM0-0016-01 (131)	P.I. Number 311005
NHIM0-0075-02 (177)	P.I. Number 311400
NH000-0016-01 (104)	P.I. Number 311410

County: Bibb County

I-16/I-75 Widening and Interchange Modification Project

Federal Route Numbers: I-75, I-16, US 129, US 23, US 80, US 89, NH 24, NH 161,  
NH 751, NH 752, ST 24, ST 371, ST 891

State Route Numbers: 401, 404, 11, 22, 87

*The I-16/I-75 Interchange Widening and Reconstruction, previously proposed as four individual projects, has been split into seven phases to facilitate construction funding. Each phase will be a stand-alone project.*

**Submitted for approval:** (Submit to "Concept Reports" in Outlook)

DATE November 10, 2011

*Brad Hall*  
Consultant Project Manager - Moreland Altobelli

DATE \_\_\_\_\_

*N/A - CMD*  
State Roadway Design Engineer

DATE 11/14/2011

*Bobby Lillard*  
State Program Delivery Engineer

DATE 11/14/11

*Chris Bowman*  
GDOT Project Manager

**Recommendation for Approval:** *\*\*Recommendations on file - CMD*

DATE 11/28/2011

*\*\*Glenn Bowman* */CMD*  
State Environment Services Administrator

DATE 12/8/2011

*\*\*Ben Rabun* */CMD*  
State Bridge & Structural Design Engineer

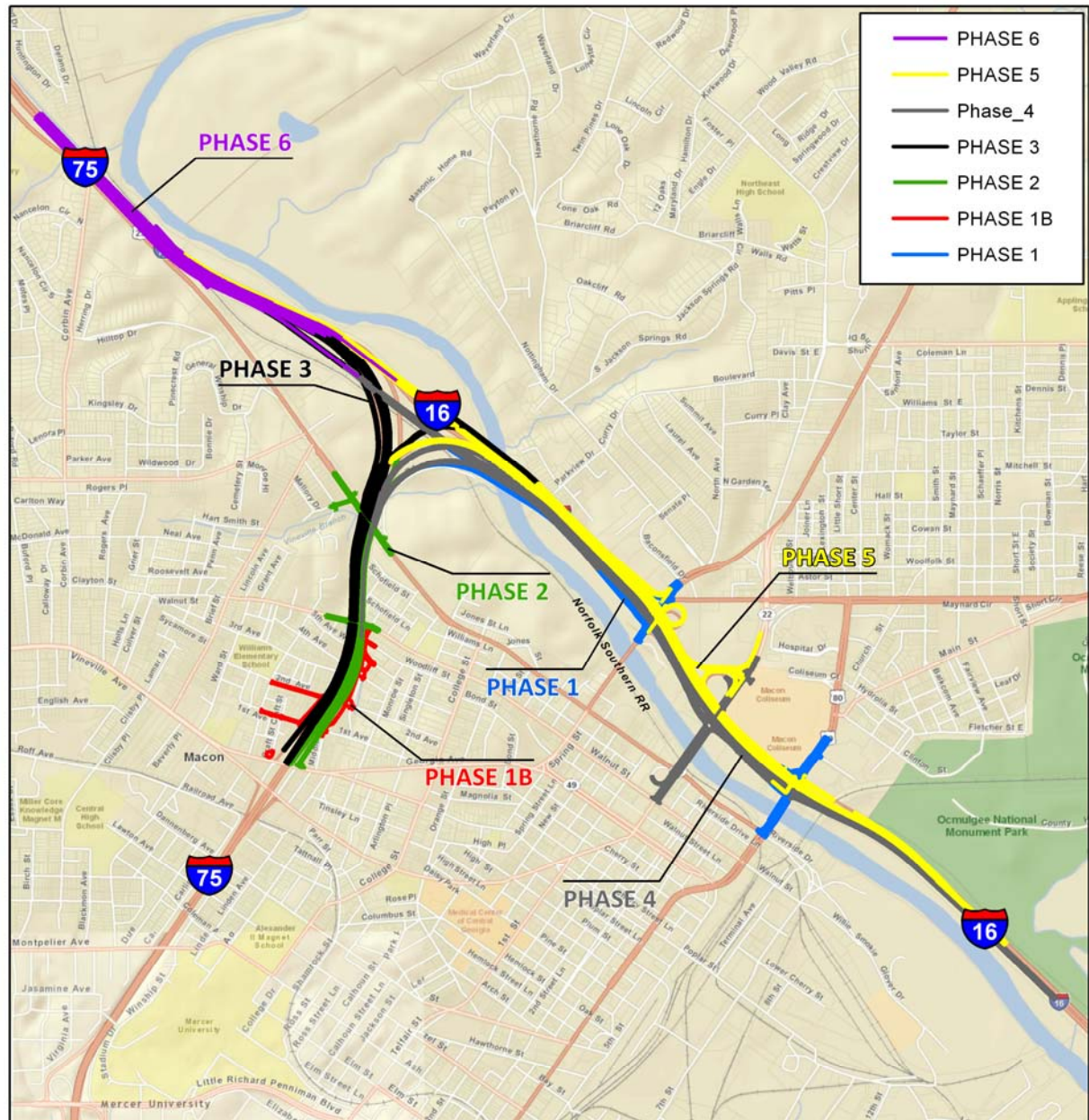
The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and the State Transportation Improvement Program (STIP).

DATE 11-30-11

*Cynthia L. Varghe* *\**  
State Transportation Planning Administrator

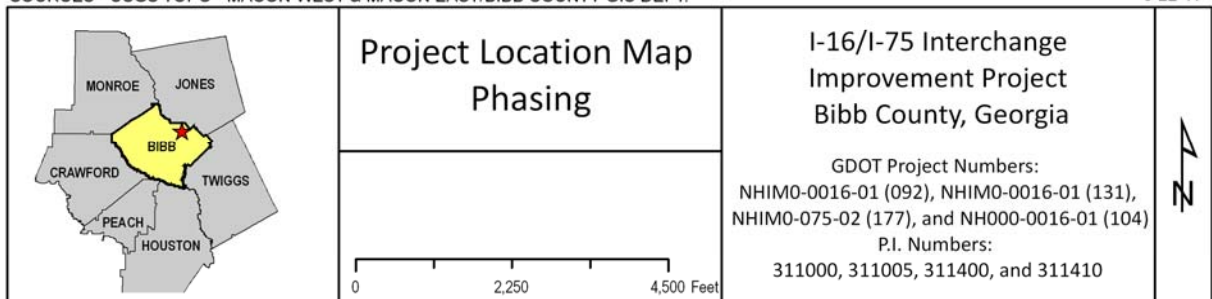
*\* THE ABOVE CONCEPT IS SIGNED WITH THE UNDERSTANDING THAT THE MACON-BAB MPD TIP WILL NEED TO BE AMENDED TO ACCOUNT FOR THE PROPOSED NEW PI NUMBERS. THE OFFICE OF PLANNING WILL COORDINATE WITH THE MPD ONCE THE CHANGES HAVE BEEN MADE TO TPOD.*





SOURCES - USGS TOPO - MACON WEST & MACON EAST/BIBB COUNTY GIS DEPT.

9-22-11

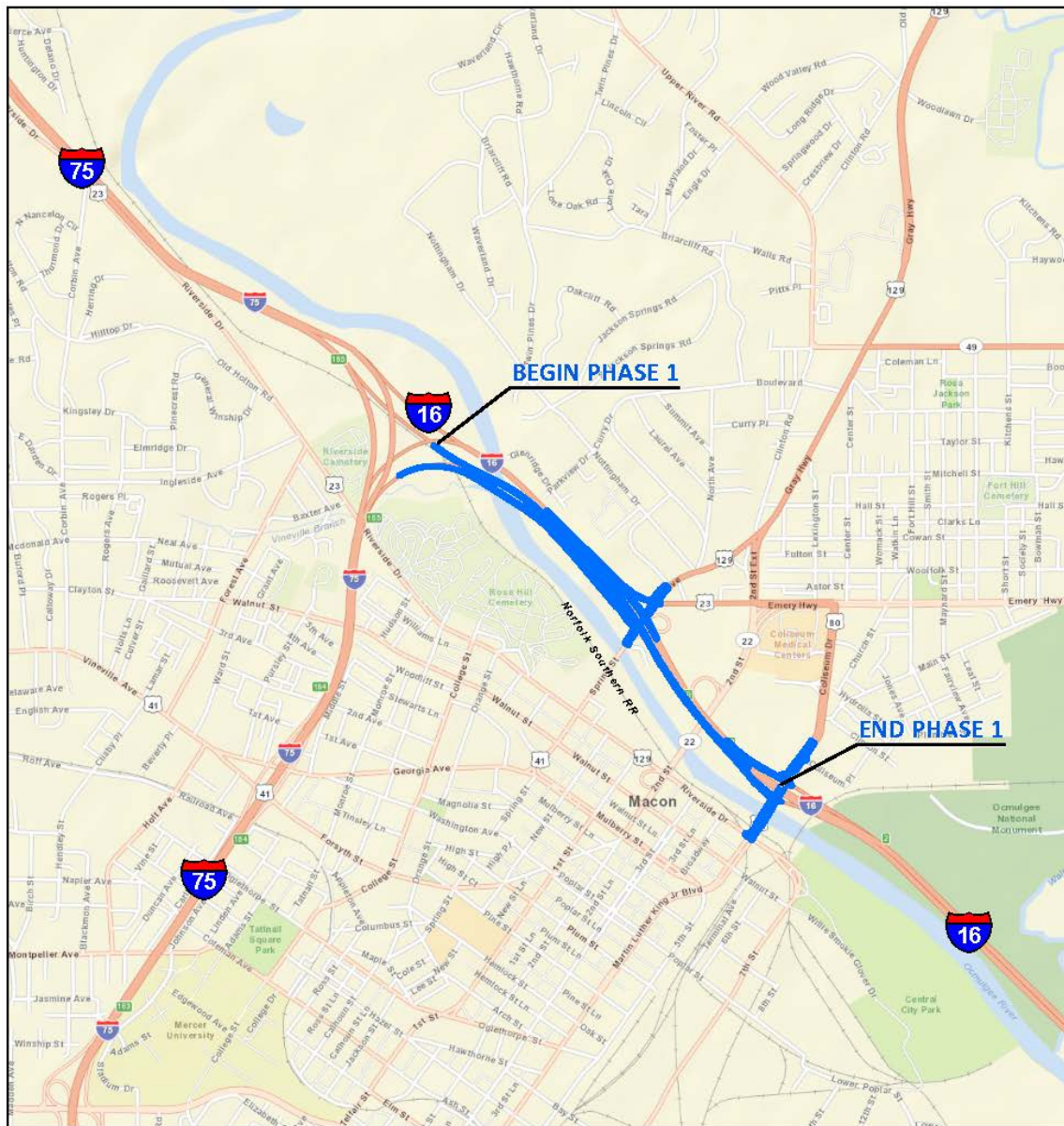




Revised Project Concept Report page 3

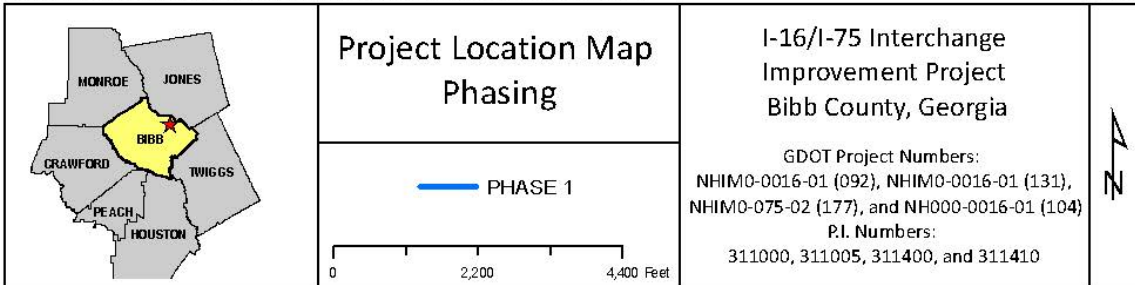
Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410



SOURCES - USGS TOPO - MACON WEST & MACON EAST/BIBB COUNTY GIS DEPT.

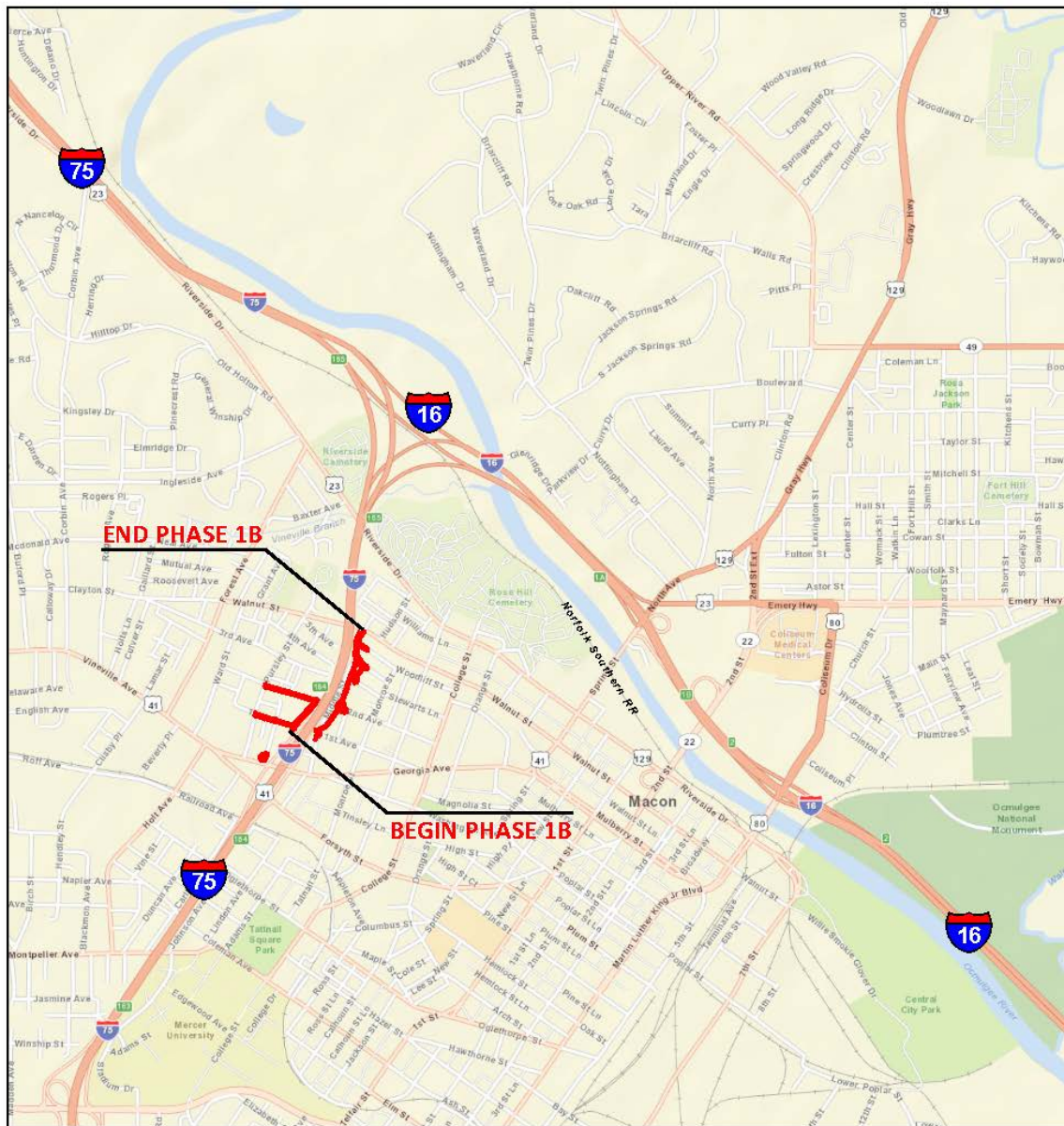
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Revised Project Concept Report page 4

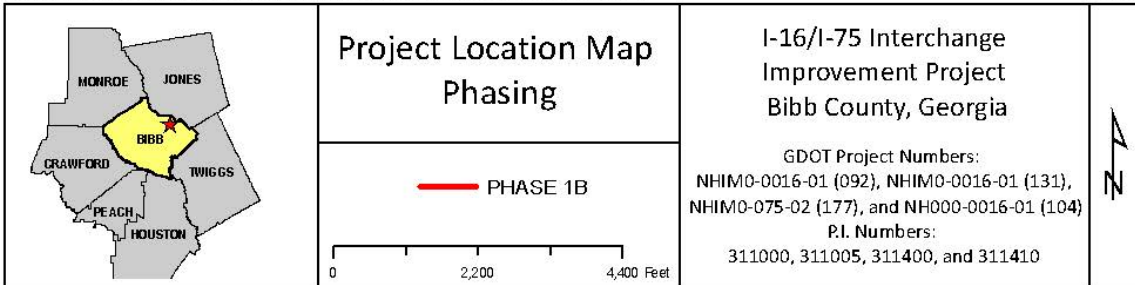
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P.I. Numbers: 311000, 311005, 311400, 311410



SOURCES - USGS TOPO - MACON WEST & MACON EAST/BIBB COUNTY GIS DEPT.

5-23-12

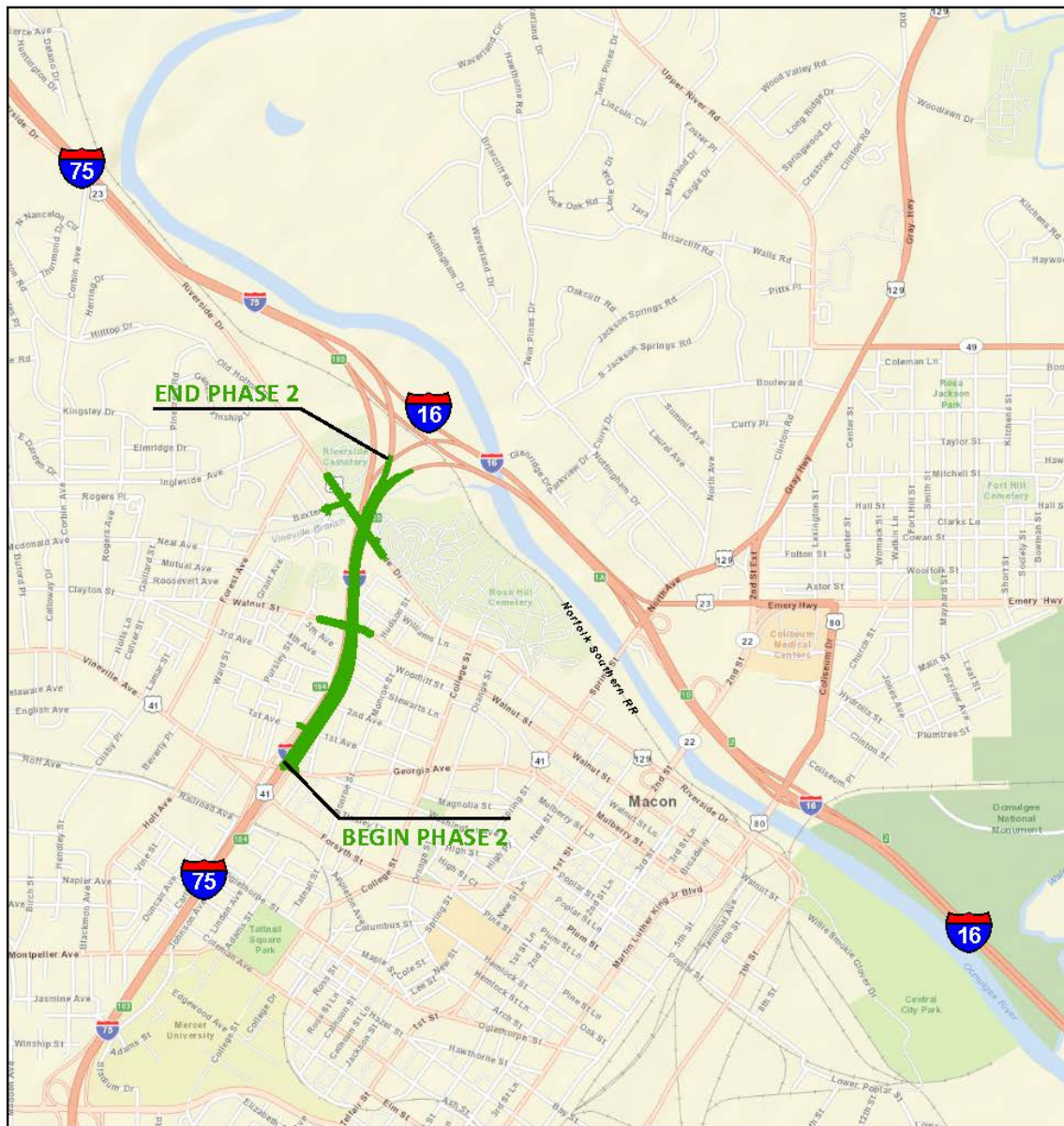




Revised Project Concept Report page 5

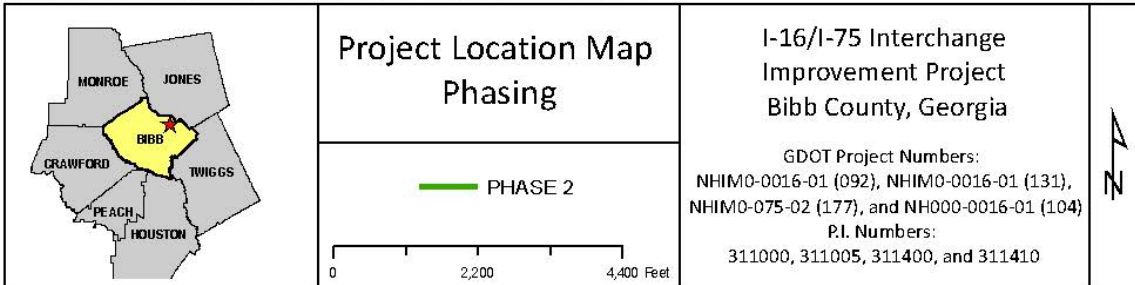
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P.I. Numbers: 311000, 311005, 311400, 311410

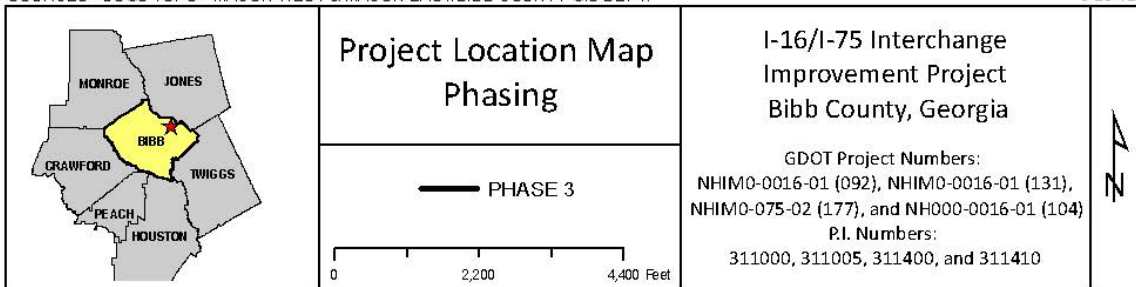


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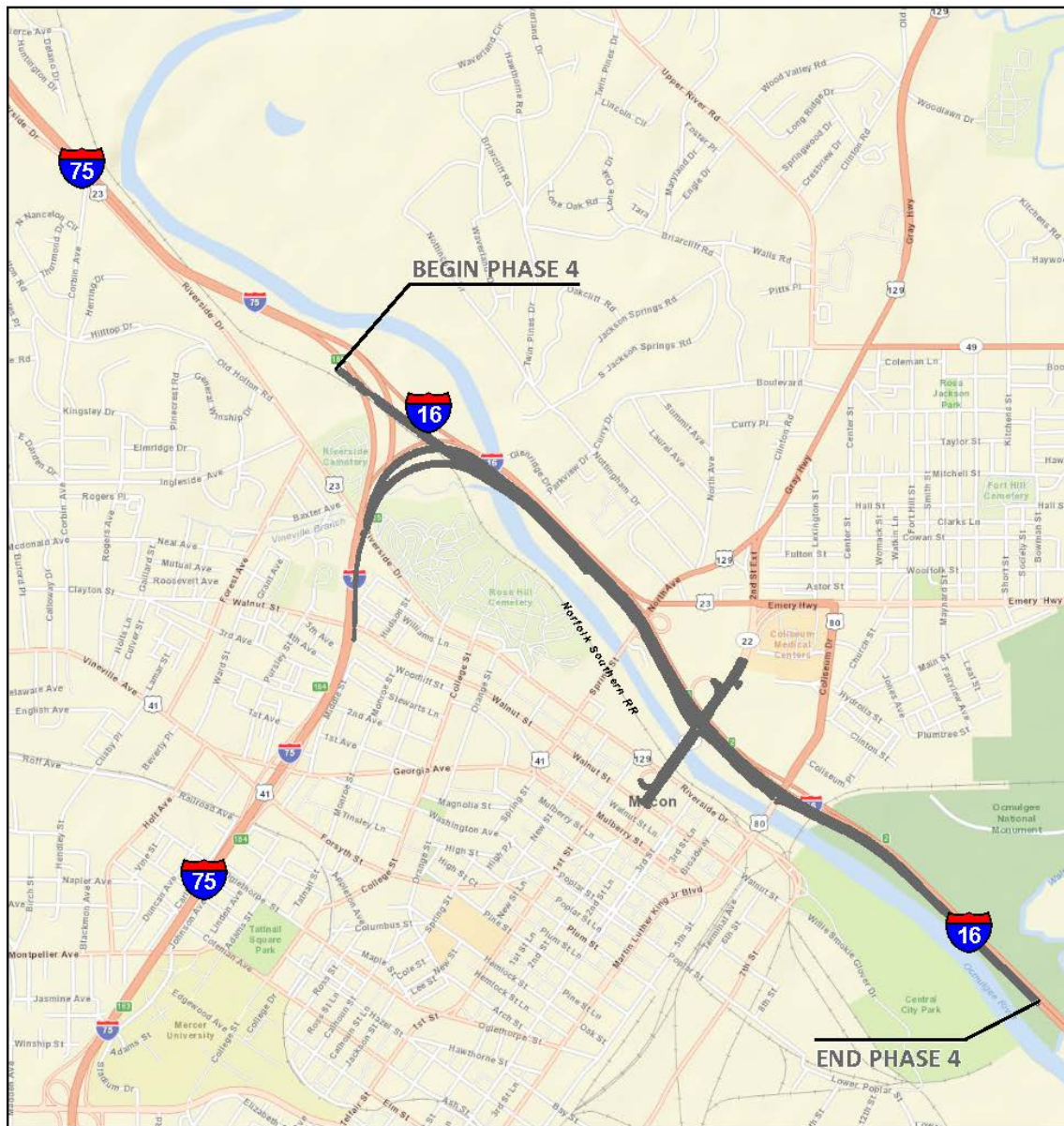
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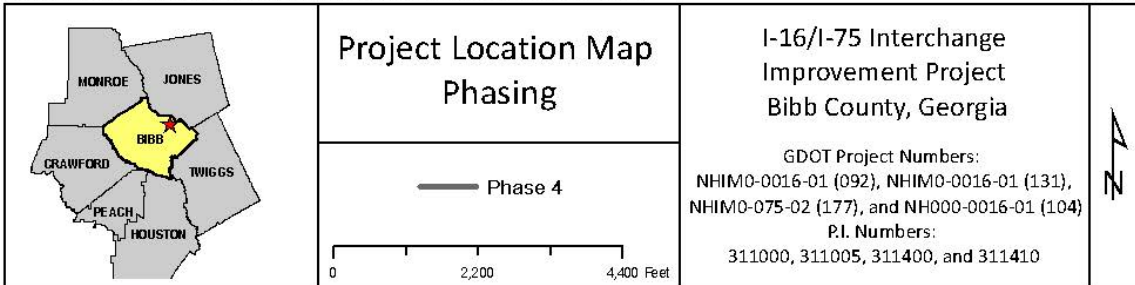


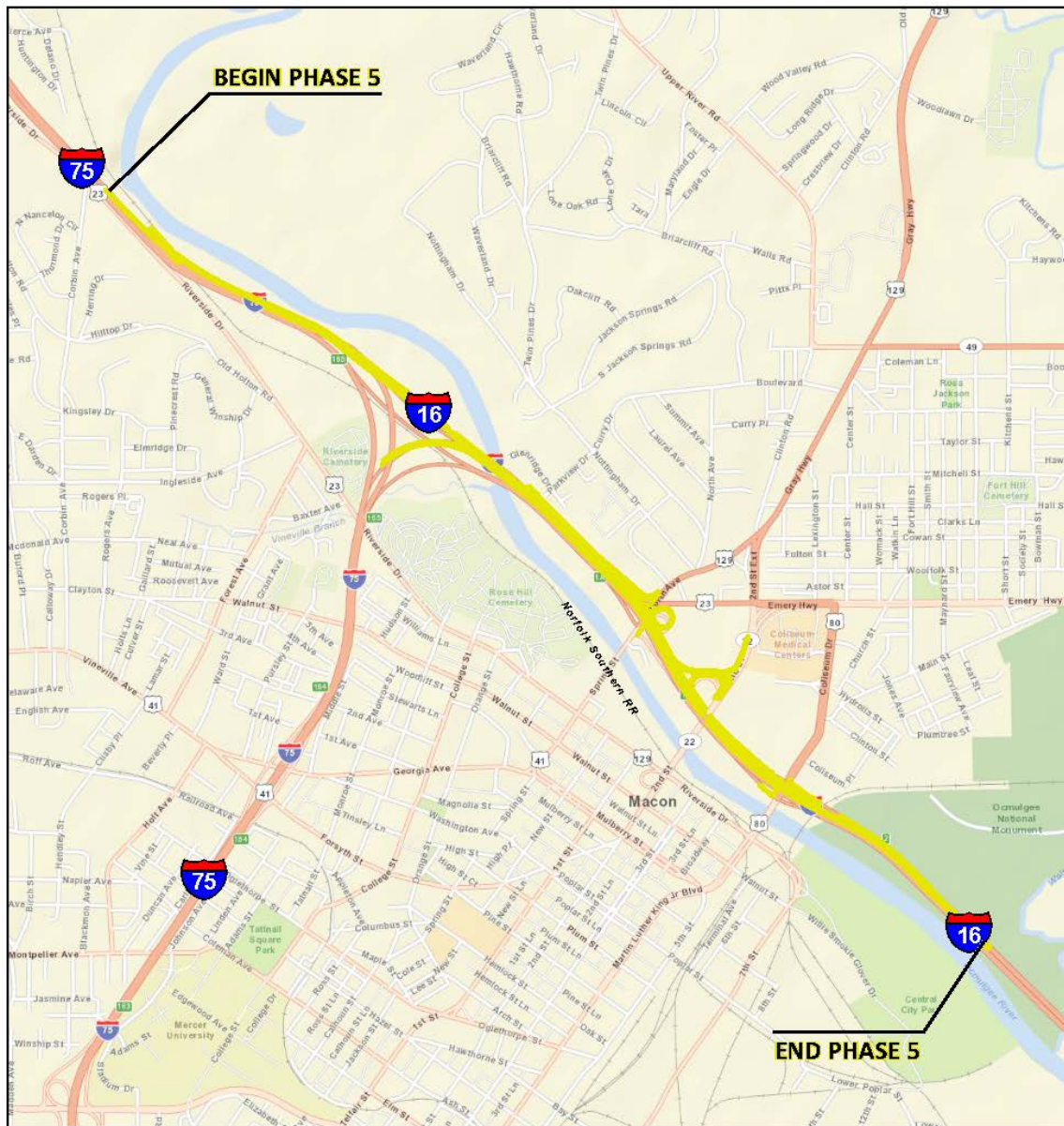




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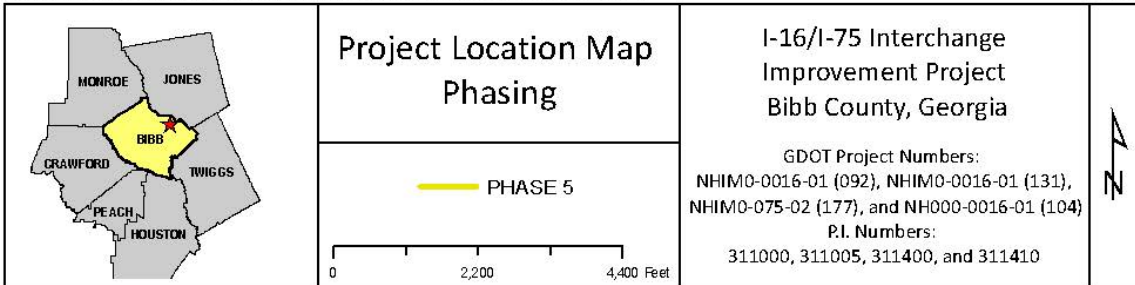
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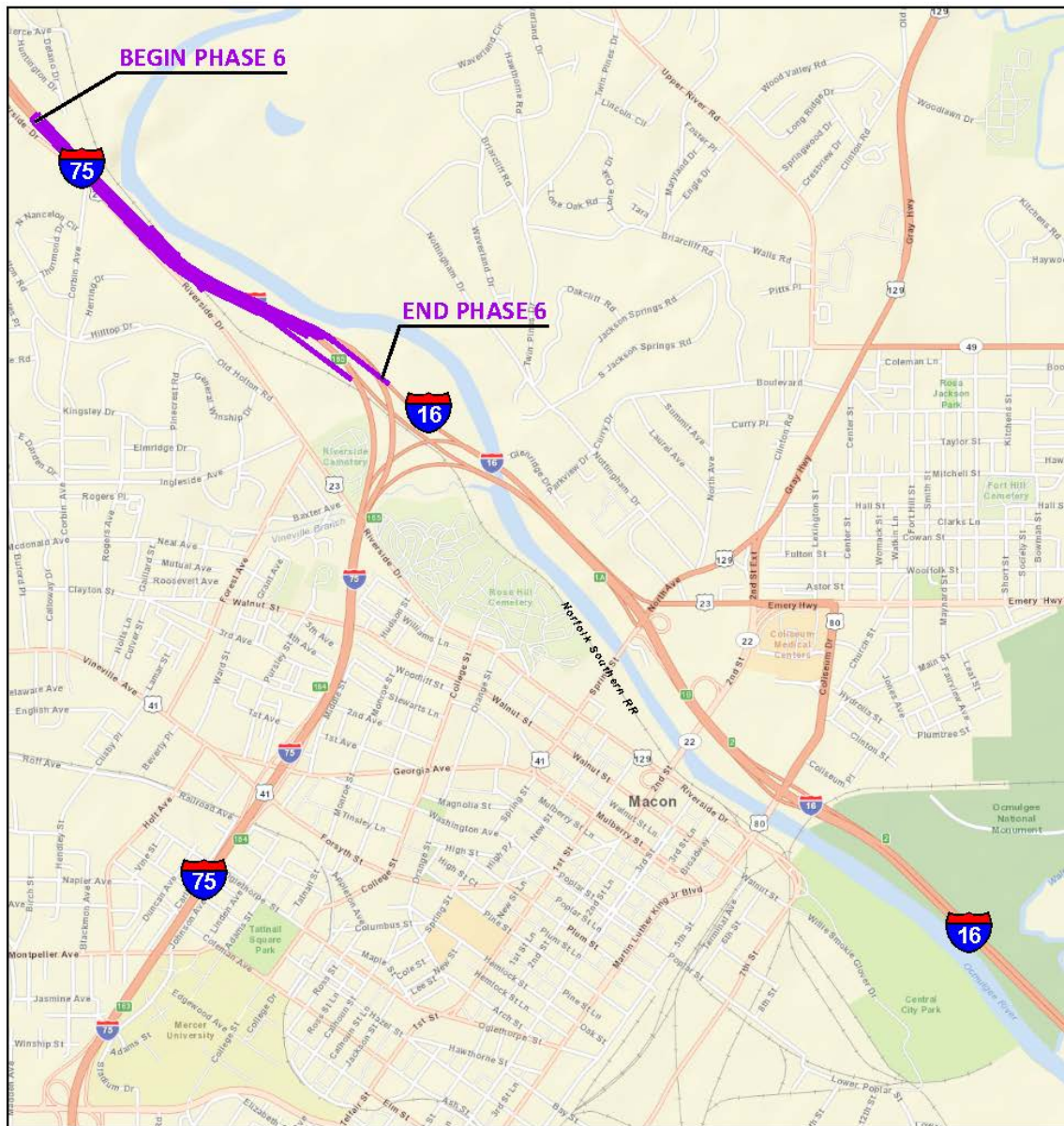


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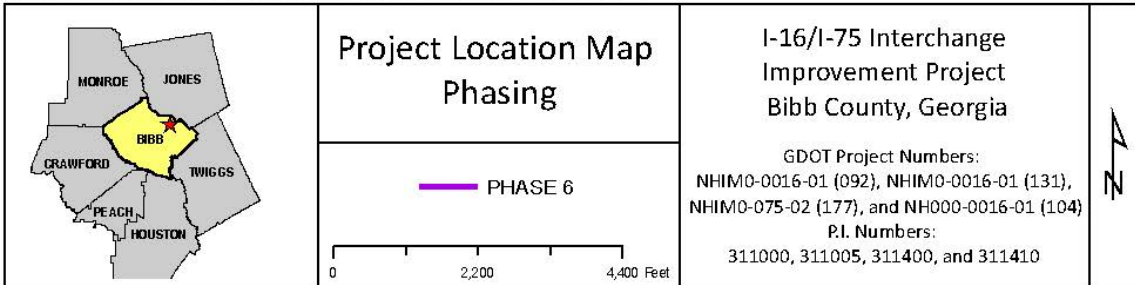






SOURCES - USGS TOPO - MACON WEST & MACON EAST/BIBB COUNTY GIS DEPT.

5-23-12



**Need and Purpose:** See Attachment Section 1.

**Project Location:**

The project is located in an urban area in downtown Macon and includes improvements to approximately 2.58 miles of I-75 from Hardeman Ave. to Pierce Ave. (mp 164.12 to 166.70) and 2.92 miles of I-16 from I-75 to Walnut Creek (mp 0.00 to 2.92). The project would also improve three arterial interchanges along I-16: Spring St. (mp 1.20), Second St. (mp 1.56), and Coliseum Dr. (mp 1.88).

**Description of the Approved Project:**

The purpose of the proposed project is to improve the operational efficiency and safety of the I-16/I-75, I-16/Spring Street, I-16/Second Street, and I-16/Coliseum Drive interchanges by adding capacity to both I-75 and I-16, improving the existing interchanges (Second Street would become a full-access interchange), and by introducing a collector-distributor (CD) road system. The CD roads are to be constructed along the eastbound and westbound lanes of I-16, as well as along the northbound and southbound lanes of I-75. These CD roads would separate the local and through traffic helping to eliminate the difficult weaving maneuvers created by the close proximity of the interchanges. Due to the magnitude of the work needed to complete the reconstruction and upgrade of the aforementioned interchanges, the project has been divided into the following Georgia Department of Transportation (GDOT) projects:

NHIM0-0016-01(092), P.I. 311000 – Improvements along I-16 from I-75 to Coliseum Drive

This project includes reconstructing the I-16 interchanges with Spring Street and Second Street, improving I-16 between I-75 and Coliseum Drive, and adding eastbound and westbound collector-distributor roads.

NHIM0-0016-01(131), P.I. 311005 – I-16/Coliseum Drive Interchange Improvements

This project includes reconstructing the I-16 interchange with Coliseum Drive, improving I-16 between Second Street and Walnut Creek, and widening Coliseum Drive from Riverside Drive to the second Macon Centreplex entrance, north of I-16.

NHIM0-0075-02(177), P.I. 311400 – I-75 Improvements from Pierce Avenue to I-16

This project includes widening and improving I-75 between Pierce Avenue and the I-16/I-75 interchange.

NH000-0016-01(104), P.I. 311410 – I-16/I-75 Widening and Interchange Modification

This project consists of reconstructing the I-16/I-75 interchange and improvements to I-75 south of the interchange to the Hardeman Avenue Bridge, including the construction of collector-distributor roads along I-75.

**PDP Classification:** Major   X   Minor     

**Federal Oversight:** Full Oversight (X), Exempt( ), State Funded( ), or Other ( )

**Functional Classification:**

Interstate-16	Urban Interstate Principal Arterial
Interstate-75	Urban Interstate Principal Arterial
Spring Street	Urban Principal Arterial
Second Street	Urban Principal Arterial
Coliseum Drive / M.L.K. Jr. Blvd.	Urban Principal Arterial
Riverside Drive	Urban Principal Arterial
Walnut Street	Urban Collector Street

**U. S. Route Number(s):** 16, 75, 23, 80, 129    **State Route Number(s):** 401, 404, 11, 22, 87

**Traffic (AADT) as shown in the approved concept:**

	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-75 Northbound	39,950	59,000
I-75 Southbound	39,950	59,000
I-75 Northbound CD	33,950	50,100
I-75 Southbound CD	22,550	30,800
I-16 Eastbound	26,750	38,450
I-16 Westbound	24,350	35,150
I-16 Eastbound CD	29,500	40,050
I-16 Westbound CD	31,950	43,350
Spring Street	53,250	72,700
Second Street	30,400	41,300
Coliseum Drive	36,800	49,900
Riverside Drive	21,400	23,650
Walnut Street	4,100	4,550

**Updated Traffic Data (AADT):**

<u>PHASE 1:</u>	<u>Open Year: (2014)</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-16 Eastbound	45,150	NA*	NA*
I-16 Westbound	15,950	NA*	NA*
I-16 Eastbound CD	29,200	29,500	40,050
Spring Street	47,600	53,250	72,700
Coliseum Drive	39,800	36,800	49,900

<u>PHASE 2:</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-75 Northbound	39,950	59,000
I-75 Northbound CD	33,950	50,100
Riverside Drive	21,400	23,650
Walnut Street	4,100	4,550



<u>PHASE 3:</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-75 Southbound	39,950	59,000
I-75 Southbound CD	22,550	30,800
I-16 Westbound CD	31,950	43,350

<u>PHASE 4:</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-75 Northbound CD	33,950	50,100
I-16 Eastbound	26,750	38,450
I-16 Eastbound CD	29,500	40,050
Second Street	30,400	41,300

<u>PHASE 5:</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-16 Westbound	24,350	35,150
I-16 Westbound CD	31,950	43,350
Spring Street	53,250	72,700

<u>PHASE 6:</u>	<u>Base Year: (2016)</u>	<u>Design Year: (2036)</u>
I-75 Northbound	38,100	50,850
I-75 Southbound	38,100	50,800

**Approved Programmed/Schedule:**P.E.: 1987 R/W: 2011 Construction: 2018**VE Study Required ? X Yes        No**

A VE Study was conducted in March and April of 2002 by Ventry & Associates. Responses were made and final VE recommendations were submitted to FHWA in November 2002. The following is a summary of the VE recommendations and the final approved action for each:

- 1) Split Diamond interchange between Second Street and Coliseum Drive. REJECTED.
- 2) Reduce lanes on Coliseum Drive. COMPROMISE ALT ACCEPTED.
- 3) Save existing I-75 mainline bridges within I-16 interchange. REJECTED.
- 4) Remove Spring Street loop ramp to I-16 WB. REJECTED.
- 5) Reduce lanes on system-level ramps. REJECTED.
- 6) Reduce lanes on I-75 and I-16 mainline. REJECTED.

**Benefit/Cost Ratio:** 4.27**Is the project located in an Ozone Non-attainment area?** X Yes        No**Is the project located in a PM 2.5 Non-attainment area?** X Yes        No

The proposed improvements to the I-16/I-75 interchange from Pierce Avenue to the northwest, Coliseum Drive to the east, and Hardeman Avenue to the south, are included in the Macon Area Transportation Study's (MATS) Adopted Transportation Plan and the Transportation Improvement Program (TIP). Project NHIM0-0016-01(092), the widening/reconstruction of I-16 from SR 11 to SR 87, is in the TIP as MCN-10. Project NHIM0-0016-01(131), the widening of the I-16 bridge at Martin Luther King Drive, is in the TIP as MCN-66. Project NHIM0-0075-

02(177), the widening/reconstruction of I-75 from County Route 478 to I-16, is in the TIP as MCN-13. Project NH000-0016-01(104), the reconstruction of the I-16/I-75 interchange, is in the TIP as MCN-9. All four projects are included in the MATS model. The conforming plan schematic for each project is found in the attachments.

### **Approved Features to be revised:**

The proposed feature to be revised is project termini. The currently approved concept proposes to reconstruct 2.58 miles of I-75 from Hardeman Ave. to Pierce Ave. (mp 164.12 to 166.70) and 2.92 miles of I-16 from I-75 to Walnut Creek (mp 0.00 to 2.92). While these limits and the overall project footprint would remain unchanged, the revised concept proposes to divide the construction into seven phases. The right-of-way acquisition, which is currently in progress, would occur at one time and would not be divided along with the construction phases. Separating the project into phases was requested by the Office of Design for funding purposes. The project construction is currently estimated to cost in excess of \$300 million. The four existing project numbers will be assigned to four of the phases and three new project numbers will be assigned to the remaining phases.

<b>Project Phase</b>	<b>Current Project Number(s) PI Number(s)</b>	<b>Proposed Project No. / PI No.</b>
Phase 1	NHIM0-0016-01(092);NHIM0-0016-01(131) PI #311000; 311005	NHIM0-0016-01(092) PI #311000
Phase 1B	NHIM0-0016-01(104) PI #311410	To Be Assigned
Phase 2	NHIM0-0016-01(104) PI #311410	To Be Assigned
Phase 3	NHIM0-0016-01(104) PI #311410	NHIM0-0016-01(104) PI #311410
Phase 4	NHIM0-0016-01(092);NHIM0-0016-01(131) PI #311000; 311005	NHIM0-0016-01(131) PI # 311005
Phase 5	NHIM0-0016-01(092) PI #311000	To Be Assigned
Phase 6	NHIM0-0075-02(177) PI #311400	NHIM0-0075-02(177) PI #311400

In addition to breaking the project into smaller segments for funding, it was the Department's goal to improve areas with the most significant safety problems first. Included in the Need & Purpose (attachment #1) is a crash data diagram (figure 8) which illustrates the crashes that have occurred throughout the project corridor from 2001 through 2008. Based on this data, the most critical areas of concern are:

1. Eastbound I-16 at the Spring Street exit ramp.
2. Westbound I-16 at the Spring Street entrance ramp.

Each of the critical safety concerns are addressed with the proposed Phase 1 construction. The sequence of construction for the remaining phases was determined based on a logical order for construction staging.

### **Proposed Features:**

The project would be divided into seven phases (Phases 1, 1B & 2-6), as described below, based on addressing those areas with the highest crash frequency first.

#### Phase 1 – PI #311000

Phase 1 will improve approximately 1.57 miles of I-16 eastbound between I-75 and Coliseum Dr. (milepost 0.34 to 1.91). Phase 1 will also include operational improvements to I-16 westbound at the Spring Street interchange (milepost 0.74 to 1.26). This phase will temporarily shift the merge between the ramps from I-75 southbound and I-75 northbound that form I-16 eastbound from the Ocmulgee River to a point past the exit ramp to Spring Street. As a result, only traffic from I-75 northbound will have access to Spring Street at the completion of this phase. This is necessary to eliminate the existing weave and improve safety on I-16 eastbound between I-75 and Spring St. during the first phase of construction. Full access to Spring Street from I-16 eastbound will be restored at the completion of Phase 4. The additional traffic burden at Coliseum Drive will result in failing levels of service at the eastbound ramp junction by the year 2024. Phase 4 construction should be completed by that time.

As a result of the increased traffic exiting at Coliseum Dr., Phase 1 will require an additional right turn lane at the eastbound ramp intersection. This additional turn lane will no longer be necessary at the completion of Phase 4.

Phase 1 will also close the Spring St. loop ramp and will construct a left turn lane for northbound Spring St. traffic to access the I-16 Westbound entrance ramp, which will have to be re-aligned slightly to enable the left turn maneuvers. Other Phase 1 improvements include the following:

- Construction of I-16 Eastbound CD road between I-75 and Spring St. including detour/pedestrian bridge over river, portions of the viaduct bridge, the eastbound CD bridge over Spring St., and the ramp to Spring St.
- Overlay/Re-striping sections of I-16 Eastbound between I-75 and Coliseum Dr. with new lane configuration resulting. The single lane ramp from I-75 Southbound which currently connects with the two-lane ramp from I-75 Northbound to form the three-lane section of I-16 Eastbound at the Ocmulgee River will be extended to past Spring Street. The existing three lane section of I-16 eastbound between the Ocmulgee River and Spring Street will be re-striped with a single, 16-foot lane.
- Overlay/Re-striping of I-16 Westbound at Spring St. to accommodate the loop ramp closure and altered lane configuration at remaining entrance ramp gore.
- Interim improvements to the westbound entrance ramps at Spring St. and Coliseum Dr. These improvements are necessary to temporarily connect the surface street improvements to the existing mainline until the permanent interstate improvements are constructed in Phase 5.
- Permanent closure of the eastbound entrance ramp at Spring St.

- Milling and overlay on Spring Street between the Ocmulgee River and Baconsfield Drive. This is necessary to for modifying the striping on Spring Street per the new interchange configuration.
- Widening Coliseum Drive / Martin Luther King Jr. Blvd to include turn lanes, an additional northbound through lane, a raised median, and 10-foot sidewalks. This is the permanent configuration for Coliseum Drive/MLK Blvd. (note: this route is Coliseum Drive through the I-16 interchange and north of I-16, and MLK Jr. Blvd south of I-16). This widening will require complete reconstruction of the bridge over the Ocmulgee River.

#### Phase 1B – PI to be determined

Phase 1B consists of mitigation improvements to the Pleasant Hill Neighborhood on each side of the I-75 corridor from milepost 164.12 to 164.60 for a distance of 0.48 miles. The mitigation items include the following construction improvements.

- Covering of an existing concrete drainage channel between First Avenue and Walnut Street and conversion to a 1700' long triple barrel box culvert.
- A linear park with 10-ft trail along I-75 in the area bounded by the interstate, First Avenue, Walnut Street, and the former drainage channel.
- Closure of Middle St. from First Ave. to Fourth Ave. and extension of Middle St. from Fifth Ave. to Walnut St.
- Re-surfacing of First Ave. and Second Ave. on the west side of I-75.
- Closure of Frontage Rd. between First and Second Ave. to be used as greenspace for access to the pedestrian bridge.
- Cul-de-sacs at Second and Fourth Ave. on the east side of I-75 and on Craft St. on the west side of I-75.
- Streetscaping a route through Pleasant Hill to be known as the Pleasant Hill Heritage Tour. (See attached display for Phase 1B for location of this route).

#### Phase 2 – PI to be determined

Phase 2 consists of 1.02 miles of operational improvements along I-75 northbound from Hardeman Ave. to the southern limit of the I-16 Interchange (milepost 164.12 to 165.14). The exit to I-16 eastbound will be shifted south from milepost 165.04 to 164.24. The new ramp to I-16 eastbound will run parallel the I-75 northbound mainline as a collector-distributor road between Hardeman Avenue and the I-16/I-75 interchange. Following the split to I-16 eastbound, there will be two lanes on I-75 northbound and two lanes on the I-16 EB CD road. The overpass bridges at Walnut St., Riverside Dr., and the I-75 pedestrian bridge will be reconstructed to accommodate the work with this phase as well as the future work with Phase 3.

#### Phase 3 – PI #311410

Phase 3 consists of 1.79 miles of improvements to I-75 southbound from Hardeman Ave. through the interchange with I-16 (milepost 164.12 to 165.91). The egress/ingress locations to/from I-16 along I-75 southbound will be relocated from the left side of the mainline to the

right side of the mainline as part of Phase 3. The exit to I-16 eastbound from I-75 southbound will be shifted north from milepost 165.40 to 166.18. The entrance ramp from I-16 westbound to I-75 southbound will be shifted south from milepost 165.04 to 164.76.

Additional Phase 3 construction within the main interchange includes the following items:

- Construction of I-75 northbound within the I-16 / I-75 interchange.
- The west-to-south CD road and bridge over the river. This construction will extend onto I-16 from milepost 0.00 to 0.88 for a distance of 0.88 miles.
- Construction of the beginning portion of the I-75 Southbound to I-16 Eastbound ramp from I-75 milepost 165.9 to I-16 milepost 0.20.

#### Phase 4 – PI #311005

Phase 4 consists of 2.92 miles of capacity and operational improvements to I-16 eastbound from I-75 to Walnut Creek (milepost 0.00 to 2.92). Second Street will be widened from four to six lanes, and the Second Street overpass bridge will be reconstructed. A 10 foot sidewalk will be added to the east side of the Second Street bridge. Eastbound entrance and exit ramps will be added to Second Street with this phase. The Phase 4 improvements will complete the ultimate build-out of I-16 eastbound started with Phase 1. Within the main interchange, Phase 4 will also construct the remainder of the south-to-east ramp from Phase 3 and the remainder of the west-to-south ramp and north-to-east CD road from Phase 2.

#### Phase 5 – PI to be determined

Phase 5 consists of 2.69 miles of capacity and operational improvements to I-16 westbound from I-75 to Walnut Creek (milepost 0.00 to 2.69). The Spring St. loop ramp will be re-opened in Phase 5 and the northbound Spring St. left-turn lane to I-16 Westbound will be eliminated, restoring Spring St. to its current (pre-Phase 1) lane configuration. A new entrance ramp from Second Street to I-16 westbound will be added with this phase. Phase 5 will also complete the ultimate build-out of the west-to-north ramp from Phase 3 through the I-16 / I-75 interchange and will connect the north-to-east ramp with the work from Phase 2. These last two items will extend along the I-75 corridor from milepost 166.39 to 167.35 for a distance of 0.96 miles.

#### Phase 6 – PI #311400

Phase 6 consists of 1.17 miles of capacity improvements to I-75 Northbound and Southbound from the I-16 Interchange to Pierce Ave. (milepost 165.53 to 166.70). A 1600' long tunnel will be constructed for the Norfolk Southern Railroad under I-75 as part of Phase 6. Phase 6 will complete the construction of the I-75 corridor to the north of the I-16 / I-75 interchange and will connect with construction that is currently in-progress on I-75 under PI 312090.

### **Potential Environmental Impacts of Proposed Revision:**

As noted previously, the separation of the project into phases will not result in any additional environmental impacts. The phasing improvements are contained within the footprint of the approved concept.



Have proposed revisions been reviewed by environmental staff?  X  Yes   No  
Environmental Responsibilities (Studies / Documents / Permits): None required.

**Recommendation:** Recommend that the proposed revision to the concept be approved for implementation.

**Attachments:**

1. Need and Purpose Statement
2. Sketch Map of each phase
3. Cost Estimates for each phase:
  - a. Construction including Engineering & Inspection
  - b. Fuel & Asphalt Price Adjustment Forms
  - c. Right-of-Way
4. Traffic Analysis for Phase 1
5. Traffic Flow Diagrams
6. Conforming Plan Schematics
7. Project Phasing Meeting Minutes

**Full Oversight Projects:**

Concur: Bill R McManis  
Director of Engineering

Approve: Michael YMB  
for Division Administrator, FHWA

Approve: Bill R McManis  
Chief Engineer

Date: 3/21/13

## **Attachment #1 – Need and Purpose**

### **NEED AND PURPOSE:**

#### **A. INTRODUCTION**

The proposed project consists of the reconstruction of the I-16/I-75 interchange and other I-16 interchanges within the City of Macon. The purpose of the proposed project is to improve the operational efficiency of the following interstate interchanges in Macon:

- Mainline I-16 @ Mainline I-75
- Spring Street @ I-16
- Second Street @ I-16
- Coliseum Drive @ I-16

As a result of operational improvements, the proposed project would reduce congestion, improve safety, and provide better access to and from the downtown Macon area. Improving sight distances, separating through traffic from local traffic, and improving existing interchange operations on I-16 should substantially contribute to reducing the crash rate.

The original configuration of the I-16/I-75 interchange, which was constructed in 1963, included a two-lane ramp from I-75 southbound to I-16 eastbound and provided two through lanes for traffic continuing southbound on I-75. These configurations have since been modified in order to reduce the high number of sideswipe crashes occurring at this decision point. Modifications made to improve the safety of the interchange at this point included the striping out of lanes on both the entrance to I-16 eastbound and the I-75 mainline so that only the left lane exited for I-16 and the right lane continued south on I-75. The interchange operated for many years under this condition until the 1990's when an I-75 widening project and a separate maintenance project resulted in the reclaiming of the previously striped out I-75 lane through the interchange. Both the I-75 widening project and the maintenance project were I-75 mainline capacity projects and did not address the interchange deficiencies.

Proposals to correct the deficiencies of the I-16/I-75 interchange have been studied since the early 1980's. In 1994, the Georgia Department of Transportation (GDOT) began concept development work for improving the interstate system in Macon. In 1999, the GDOT let a contract for validating the project concept, conducting the necessary environmental studies, preparing preliminary construction plans, and preparing final right-of-way plans for the I-16/I-75 interchange project.

#### **B. EXISTING CONDITIONS**

The section of I-75 to be reconstructed currently has two lanes in each direction north of I-16, and three lanes in each direction south of the I-16 interchange. The section of I-16 to be improved currently has two lanes in each direction throughout the project limits except for the section between I-75 and Spring St., which has four eastbound and three westbound lanes. The proposed project also includes four major interchanges on I-16 and I-75. The interchange of Coliseum Drive and I-16 is one of only two fully developed interchanges in the project area. It is a full diamond interchange, but operationally insufficient for the existing and proposed traffic (see Table 3, Average Annual Daily Traffic and Levels of Service), as queues in the existing

**Attachment #1 – Need and Purpose**

condition extend onto the mainline of I-16 during peak traffic hours creating a situation where drivers have to stoop unexpectedly and contributes to the high rear-end crash rate within the project limits. The only other full interchange is the I-16/I-75 interchange, which is characterized as having poor sight distances, short driver decision time, and inadequate distances for weaving movements. Table 1 summarizes the type of interchanges and their existing characteristics.

**Table 1: Existing Interchanges and Exit Ramp Summary**

Location	Interchange Type	Description of Existing Ramps
I-16 at Coliseum Drive	Full Diamond	I-16 EB exit to Coliseum Dr (one lane) I-16 EB entrance from Coliseum Dr. (one lane) I-16 WB exit to Coliseum Dr (one lane) I-16 WB entrance from Coliseum Dr. (one lane)
I-16 at Second Street	Partial Cloverleaf	I-16 WB exit to 2 <sup>nd</sup> Street (one lane loop)
I-16 at Spring Street	¾ Diamond with Loop	I-16 EB exit to Spring St. (two lanes) I-16 EB entrance from Spring St. (one lane) NB Spring St. to I-16 WB (one lane loop) SB Spring St. to I-16 WB (two lanes)
I-16 at I-75	Directional “Y” Type Interchange	I-75 NB to I-16 EB (two lanes) I-75 SB to I-16 EB (one lane) I-16 WB to I-75 NB (one lane) I-16 WB to I-75 SB (two lanes)
I-75 at Hardeman Avenue and Forsyth Street	Split Diamond Interchange	I-75 NB exit to Forsyth St (one lane) I-75 NB entrance from Hardeman Ave (one lane) I-75 SB exit to Hardeman Ave (one lane) I-75 SB entrance from Forsyth St (one lane)

The existing interchanges proposed for improvement include a number of major structures. There are 20 bridges within the project corridor. The existing bridges and their dimensions are shown in Table 2.

**Table 2: Summary of Existing Structures (Bridges)**

Location of Existing Bridges	Length (in feet)	Width (in feet)	Sufficiency Rating
David Lucas pedestrian bridge over I-75	498	11	N/A
Walnut Street over I-75	239	61	93.82
Riverside Drive over I-75	392	63	63.18
I-16 westbound to I-75 southbound ramp over I-75 northbound	198	40	90.38
I-75 northbound over ramp to I-16 eastbound and Norfolk-Southern Railroad	313	34	65.88
I-75 southbound over Norfolk-Southern Railroad @ MP 164.99 (within interchange)	247	35	55.80

**Attachment #1 – Need and Purpose**

I-75 northbound over Norfolk-Southern Railroad @ MP 165.58	564	34.5	67.16
I-75 southbound over Norfolk-Southern Railroad @ MP 165.60	430	34.5	66.06
I-75 northbound to I-16 eastbound ramp over Norfolk-Southern Railroad	209	40	92.71
I-16 westbound to I-75 southbound ramp over ramp to I-16 eastbound and Norfolk-Southern Railroad	287	34	58.35
I-16 eastbound over Ocmulgee River	840	46	70.31
I-16 westbound over Ocmulgee River	816	50	73.31
I-16 eastbound over Spring Street	191	41	86.80
I-16 westbound over Spring Street	193	63	84.69
Second Street over I-16 and the Ocmulgee River	140	38	91.40
I-16 eastbound over Coliseum Drive	139	41	89.33
I-16 westbound over Coliseum Drive	139	41	89.33
Central of Georgia Railroad over I-16	226	N/A	N/A
Central of Georgia Railroad over I-16 westbound off-ramp to Coliseum Drive	42	N/A	N/A
Coliseum Drive over Ocmulgee River	422	77	81.20

*Source: Georgia Department of Transportation.*

**C. OPERATIONAL DEFICIENCIES**

The interchanges within the project area are generally not reflective of current interstate highway design standards. The existing interstate system in Macon was constructed in the mid 1960's. Interchange design at that point was a relatively new science. Many interchange configurations that were considered "state of the art" in the 1960's and 1970's are, by today's standards, considered unsafe and obsolete. With the exception of I-75 between I-16 and Hardeman Avenue, the section of freeway proposed for improvements has not received any substantial improvements (capacity or operational) since opening to traffic. Since design of these roadways in the early 1960's, the American Association of State Highway and Transportation Officials (AASHTO) criteria for the geometric design of highways has become more safety conscious. Differences between criteria found in the 1965 American Association of State Highway Officials (AASHO) "blue book" and the current 2004 AASHTO "green book" account for numerous locations within the project area where existing roadways do not meet current design standards. Major areas of concern in the existing project corridor are described in the following paragraphs.

Currently, the distance between the Spring Street and Second Street interchanges with I-16 is only 2,000 feet, and the distance between the Second Street and Coliseum Drive interchanges with I-16 is only 1,500 feet. The close proximity of these interchanges through downtown Macon contributes to the occurrence of crashes because large numbers of vehicles are entering and exiting the freeway within a relatively short section of roadway. Also, traffic flow and movements from downtown Macon are impacted by the partial interchanges on I-16 located at Second Street and Spring Street.

## **Attachment #1 – Need and Purpose**

In addition to the dense spacing of these interchanges, limited turning movement storage on surface streets within the interchanges is a persistent problem that creates congestion and contributes to deficient operations on the surface streets beyond exit and entrance ramps. A project to improve operations within this corridor would need to separate traffic movements that currently cause vehicles to weave in and out of travel lanes. Due to lane configurations and limited section lengths, the weaving movements between the I-16/I-75 interchange and the I-16/Coliseum Drive interchange are of particular concern for this project.

Also contributing to the operational deficiencies within the project corridor in the vicinity of the I-16/I-75 interchange is the inadequate sight distance for I-75 southbound traffic as the approach is made toward the I-16 split. Currently, a one-lane exit for I-16 eastbound traffic is developed on the left side of I-75, which is two-lanes at this location. The inadequate sight distance occurs as a result of the existing horizontal and vertical geometry of I-75 to the north of the interchange. Consequently, there is little driver decision time to enter the appropriate lane to proceed on eastbound I-16 or southbound I-75. This lack of adequate decision time and sight distance result in driver confusion and erratic weaving movements on this portion of I-75, which has contributed to the historically high crash rate for this section of freeway (see crash and injury data under Safety Considerations). Attempts to eliminate this problem with improved signage have not been successful. Consequently one of the main purposes of the proposed project is to address this operational deficiency.

### **AVERAGE ANNUAL DAILY TRAFFIC AND LEVELS OF SERVICE**

The average annual daily traffic (AADT) for five cross-sections along the I-16/I-75 corridor was developed, and the peak hour traffic conditions associated with those five sections were evaluated to determine each section's worst-case level of service (LOS). The five sections included three along I-16 and two along I-75. Level of service is a qualitative measure of the operational efficiency of a roadway under AM and PM peak hour conditions as they are seen from the driver's perspective. There are a total of six different LOS designations, from A to F, with LOS A representing the best-case operational conditions with no delays in traffic and LOS F representing a complete breakdown in traffic flow.

The LOS for these sections was examined for three time frames and for two conditions. The LOS was evaluated for the existing conditions (2005), the build year (2016) under the no-build and build condition and the design year (2036) under the no-build and build condition. The peak hour traffic conditions for the five sections on I-16 and I-75, including collector-distributor roadways associated with the 2016/2036 build conditions, were evaluated using procedures contained in the latest edition of the Highway Capacity Manual, a publication by the Transportation Research Board in Washington, DC. Table 3 summarizes the cross-section AADT and the worst-case peak hour LOS for three sections along I-16 within the area of the proposed project. The LOS results in Table 3 are general and are not completely indicative of individual roadway segment LOS conditions experienced by the driver. For more detailed results, please refer to the Interchange Modification Report. This report provides peak hour LOS results for each segment of interstate and collector-distributor roadways for each direction, and



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for both the AM and PM time periods.

**Table 3: Average Annual Daily Traffic and Levels of Service on I-16**

Location	2005 Traffic Conditions AADT/LOS <sup>1</sup> /(N) <sup>2</sup>	2016 No-Build Condition AADT/LOS <sup>1</sup> /(N) <sup>2</sup>	2016 Build Condition AADT/LOS <sup>1</sup> /(N) <sup>2</sup>	2036 No-Build Condition AADT/LOS <sup>1</sup> /(N) <sup>2</sup>	2036 Build Condition AADT/LOS <sup>1</sup> /(N) <sup>2</sup>
From I-75 to Spring St.	80,460/C (6)	112,550/E (6)	112,550/B (7/6)	157,000/F (6)	157,000/C (7/6)
From Spring St. to Coliseum Dr.	52,120/D (4)	60,100/D (4)	60,100/A (4/7)	85,050/F (4)	85,050/B (4/7)
East of Coliseum Drive	35,680/B (4)	43,050/C (4)	43,050/C (4)	62,300/D (4)	62,300/D (4)

Source: Moreland Altobelli Associates, Inc. and the Georgia Department of Transportation.

Notes: <sup>1</sup>Worst case peak hour LOS as reported in – Interchange Modification Report, June 2009.

<sup>2</sup>The first number represents the number of mainline lanes and the second number represents the number of lanes that are part of the collector-distributor roadways and ramps.

The existing AADT on I-16 ranges between 35,680 to 80,460 vehicles per day (vpd) from east of Coliseum Drive to west of Spring Street. This segment of I-16 has a corresponding LOS ranging from B to D. These LOS values indicate that I-16 can generally meet the traffic demand for the existing year 2005.

For the 2016 no-build condition, the AADT on I-16 is projected to range from 43,050 east of Coliseum Drive to 112,550 west of Spring Street, representing deterioration in the overall level of service compared to 2005. The LOS on I-16 from I-75 to Spring St. would decrease from LOS C in 2005 to LOS E in 2016. Also, the LOS of I-16 east of Coliseum Drive would decrease from LOS B in 2005, to LOS F in 2016. The section of I-16 from Spring St. to Coliseum Drive would increase in volume, but the LOS would remain the same at LOS D.

For the 2016 build condition, the AADT on I-16 is projected to range from 43,050 east of Coliseum Drive to 112,550 west of Spring Street (see Figure 1, Build and Design Year Average Annual Daily Traffic - Build Condition). For the 2016 build condition, LOS would dramatically improve at two locations, while staying the same at the third. I-16 from I-75 to Spring Street would dramatically improve from LOS E to LOS B. I-16 from Spring St. to Coliseum Dr. would improve from LOS D to LOS B. LOS B means that traffic is free flowing although the presence of other vehicles on the road begins to be noticeable. Minor traffic disruptions would easily be absorbed into the traffic flow. Also, the LOS of I-16 from Spring St. to Coliseum Dr. would improved from LOS D to LOS A, which means traffic is free flowing. East of Coliseum Drive the LOS would remain LOS C.

The AADT on I-16 for the 2036 no-build condition is projected to range from 62,300 east of

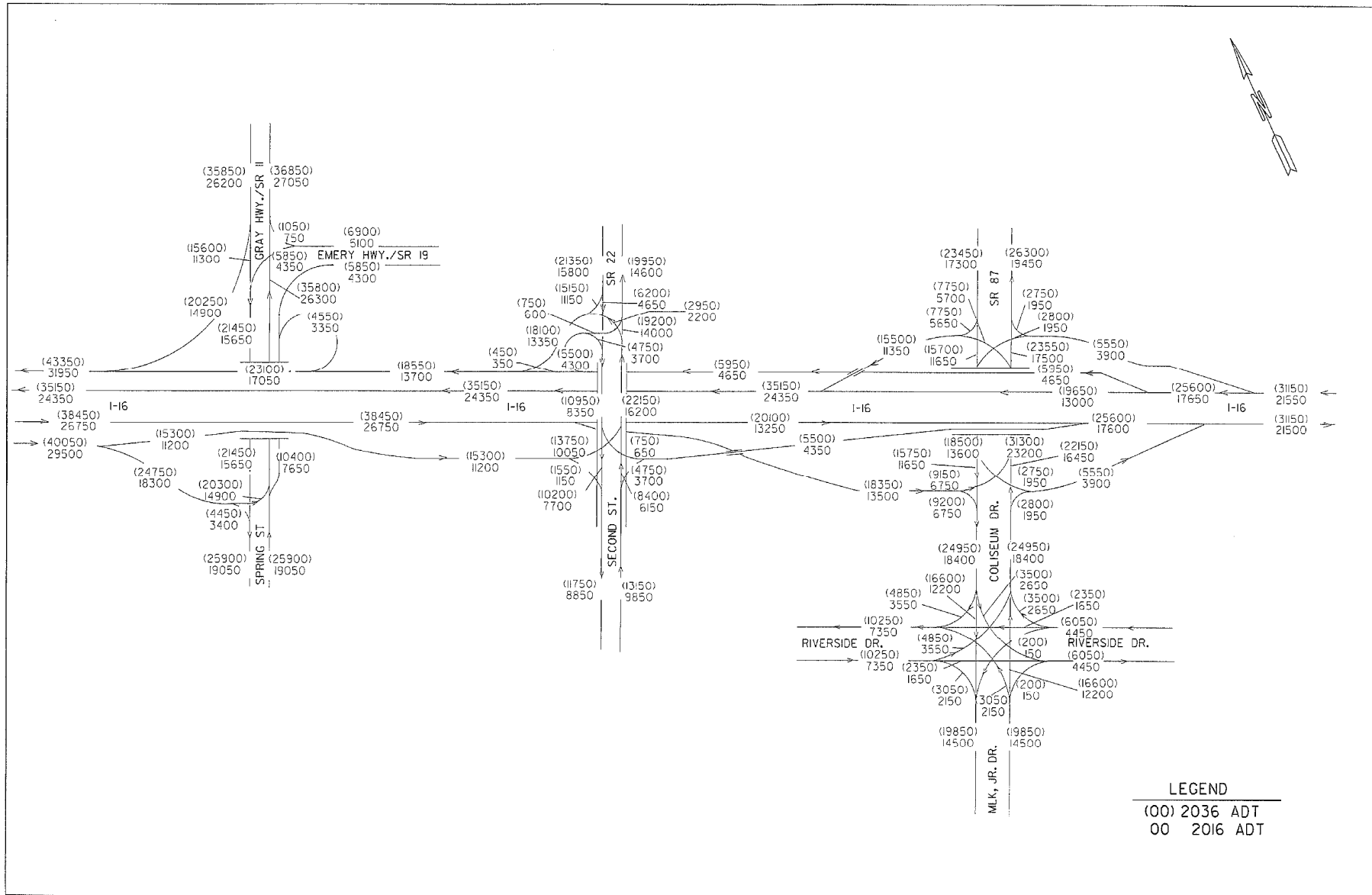
### **Attachment #1 – Need and Purpose**

Coliseum Drive, to 157,000 west of Spring Street. The corresponding 2036 no-build LOS conditions indicate that two sections of I-16 would operate at a failing level of service (LOS F). LOS F would not meet the expectations of the motoring public and indicates a total breakdown in traffic flow. The last section of I-16 east of Coliseum Dr. would operate at LOS D, which is an acceptable level of service.

For the design year 2036 build condition, the AADT on I-16 is projected to range from 62,300 east of Coliseum Drive to 157,000 west of Spring Street. The LOS results indicate a dramatic improvement over the failing levels of service experienced under the 2036 no-build condition. Two of the locations experienced an improvement from LOS F to LOS C or B, while the third location remained the same at LOS D.

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**Figure 1: Build and Design Year Average Annual Daily Traffic - Build Condition**



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Table 4 summarizes the AADT and the LOS for two sections along I-75 within the area of the proposed project. The 2005 existing AADT for I-75 had a range from 67,000 south of Pierce Avenue to 80,100 north of Hardeman Avenue. The LOS ranged from LOS D to LOS C along this section of I-75. These LOS values indicate that I-75 can generally meet the traffic demand for the existing year 2005.

**Table 4: Average Annual Daily Traffic and Levels of Service on I-75**

<b>Location</b>	<b>2005 Existing Condition AADT/LOS<sup>1</sup>/(N)<sup>2</sup></b>	<b>2016 No-Build Condition AADT/LOS<sup>1</sup>/(N)<sup>2</sup></b>	<b>2016 Build Condition AADT/LOS<sup>1</sup>/(N)<sup>2</sup></b>	<b>2036 No-Build Condition AADT/LOS<sup>1</sup>/(N)<sup>2</sup></b>	<b>2036 Build Condition AADT/LOS<sup>1</sup>/(N)<sup>2</sup></b>
South of Pierce Ave.	67,000/D (4)	76,200/E (4)	76,200/C (7)	101,650/F (4)	101,650/D (7)
North of Hardeman Ave.	80,100/C (6)	99,650/D (6)	99,650/B (6/5)	144,950/F (6)	144,950/C (6/5)

Source: Moreland Altobelli Associates, Inc. and the Georgia Department of Transportation.

Notes: <sup>1</sup>Worst case peak hour LOS as reported in – Interchange Modification Report, June 2009.

<sup>2</sup>The first number represents the number of mainline lanes and the second number represents the number of lanes that are part of the collector-distributor roadways and ramps.

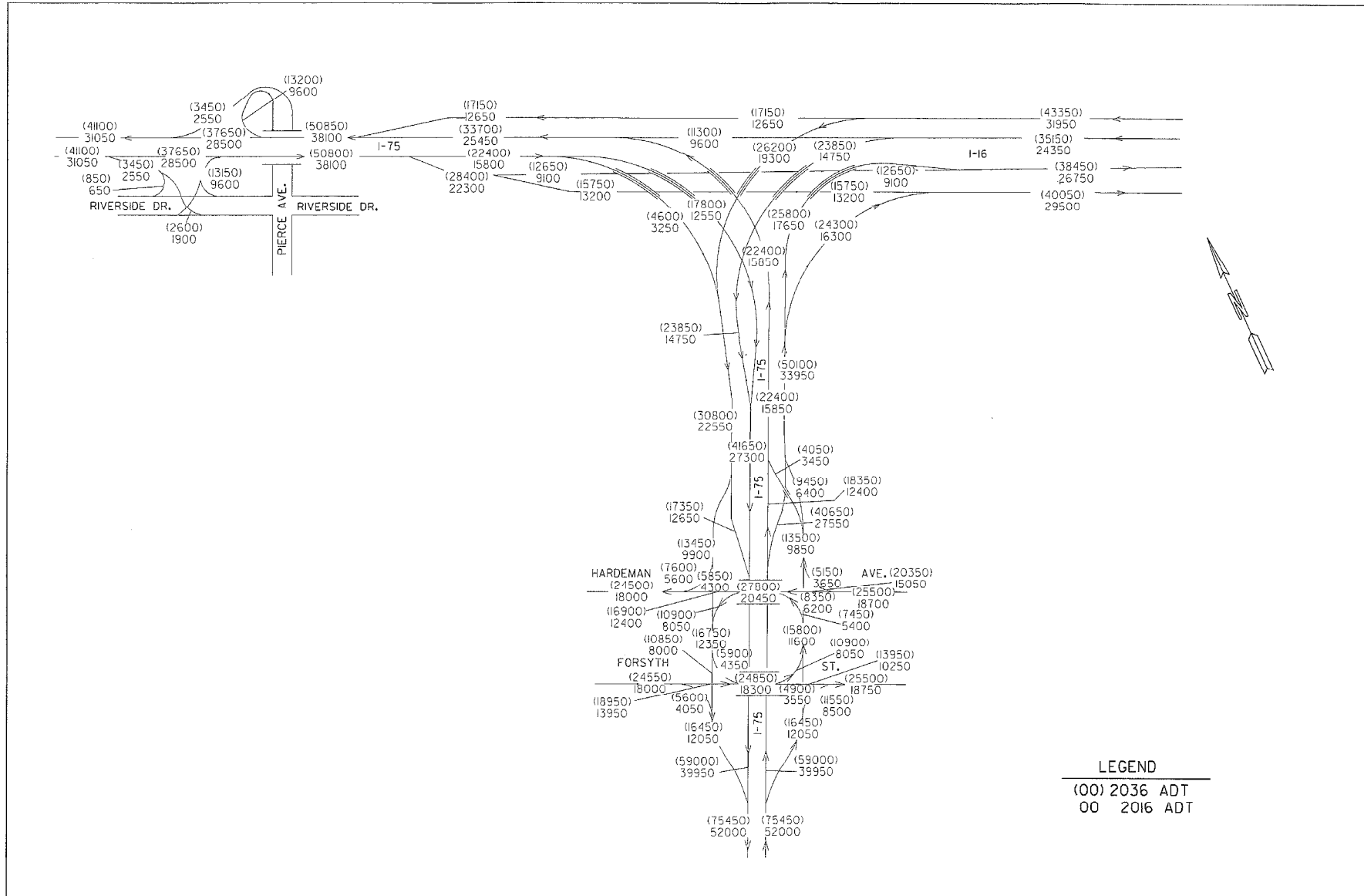
For the 2016 no-build condition, the AADT on I-75 would range from 76,200 to 99,650. The LOS on I-75, south of Pierce Avenue, would deteriorate from LOS D to LOS E. North of Hardeman Avenue, I-75 would deteriorate from LOS C to LOS D. For the 2016 build condition, the AADT on I-75 is projected to range from 76,200 south of Pierce Avenue to 99,650 north of Hardeman Avenue (see Figure 4, Build and Design Year Average Annual Daily Traffic - Build Condition). The LOS of I-75, south of Pierce Avenue, would be LOS C, and north of Hardeman Avenue, I-75 would operate at LOS B, representing an increase from LOS E and D, respectively.

For the 2036 no-build condition, the AADT on I-75 would range from 101,650 south of Pierce Avenue, to 144,950 north of Hardeman Avenue. The LOS for both of these sections of I-75 would be LOS F. For the design year 2036 build condition, the AADT on I-75 is projected to range from 101,650 south of Pierce Avenue to 144,950 north of Hardeman Avenue (see Figure 2). For the 2036 build condition, the LOS south of Pierce Ave. would be LOS D and north of Hardeman Ave., I-75 would operate at LOS C, representing an increased from LOS F and D, respectively.

As is indicated in the preceding tables, existing and future AADT volumes and the indicated peak hour LOS levels demonstrate the need for substantial improvements in the area of the I-16/I-75 interchange. The density of interchanges and the weaving and other traffic movements required by motorists to enter and exit I-16 in this area create substantial operational and safety problems. As a result of the planned interstate widening, construction of the collector-distributor roads, and interchange ramp improvements, higher traffic volumes could be accommodated at improved levels of service.

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**Figure 2: Build and Design Year Average Annual Daily Traffic - Build Condition**



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### **FUTURE DESIGN HOUR TRAFFIC AND LEVELS OF SERVICE**

Future year (2036) freeway and surface street operations within the study area roadway network were analyzed according to the latest version of the Highway Capacity Software. However, TRAF-CORSIM, a network computer simulation program was used to supplement the HCS analysis in selected critical freeway segments. Future traffic conditions were analyzed for the 2036 Build and No-Build Condition. The level of service was determined for basic freeway sections, ramp junctions, weaving sections, and signalized intersections within the project limits. The Build condition consists of the Preferred Concept (Alternative 9) and its related transportation improvements. Under the No-Build condition, no action would be taken to construct any transportation improvements.

### **Analysis of Basic Freeway Sections**

No-Build and Build (Alternative 9) freeway segment analysis was conducted for one-way freeway segments of I-75 and I-16 using projected year 2036 traffic volumes and lane configurations. The level of service results with the associated direction and number of lanes for each segment are shown in Table 4: Year 2036 Freeway Segment LOS Analysis Results.

**Attachment #1 – Need and Purpose****Table 5: Year 2036 Freeway Segment LOS Analysis Results**

Freeway Segments (From/To)	Dir.	No-Build			Build		
		No. of Lanes	AM (LOS)	PM (LOS)	No. of Lanes	AM (LOS)	PM (LOS)
NHIM0-0075-01 (214), P.I. No. 311560 (I-75/Hardeman Ave/Forsyth Street Interchange)*							
I-75 south of Forsyth St	NB	3	E	D	4	C	C
I-75 south of Forsyth St	SB	3	C	F	4	C	D
NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104), NHIM0-0016-01 (092) P.I. Numbers 311005, 311400, 311410, 311000							
I-75 from Hardeman Ave to I-16	NB	4	B	C	2	B	C
I-75 from I-16 to Hardeman Ave	SB	4	C	D	3	A	C
I-16 from I-75 to Spring St	EB	4	C	C	4	B	A
I-16 from Spring St to I-75	WB	3	D	F	3	A	C
I-16 from Spring St to Second St	EB	3	C	B	4	B	A
I-16 from Second St to Spring St	WB	2	C	F	3	A	C
I-16 from Second St to Coliseum Dr	EB	3	C	B	2	A	A
I-16 from Coliseum Dr to Second St	WB	3	C	E	3	A	C
I-16 east of Coliseum Dr	EB	2	C	C	2	C	C
I-16 east of Coliseum Dr	WB	2	B	D	2	B	D
I-75 from I-16 to Pierce Ave	NB	2	E	F	3	B	C
I-75 from Pierce Ave to I-16	SB	2	F	E	3	D	C
NHIM0-0075-02 (211), P.I. No. 312090 (Widening of I-75 from Pierce Ave to Arkwright Rd)							
I-75 north of Pierce Ave	NB	2	D	F	3	B	D
I-75 north of Pierce Ave	SB	2	F	D	3	C	C

\* This project was analyzed with the recommended widening of I-75 mainline from Forsyth Street to Mercer University Drive included in the Build condition.

The majority of the freeway segments would operate at capacity or failing levels of service under the 2036 No-Build condition. The only segments that are shown to be operating at LOS D or better for both the AM and PM peak hour are I-75 from Hardeman Avenue to I-16 and I-16 east of Coliseum Drive.

However, the TRAF-CORSIM simulation model of the No-Build condition indicates that only I-16 east of Coliseum Drive would actually operate at an acceptable level of service. The simulation shows that the lack of capacity on I-75 south of Forsyth Street impedes the operations upstream on the interstate, causing a failing level of service on I-75 between I-16 and Hardeman Avenue during the AM peak hour. It is recommended that the I-75 mainline from Forsyth Street to Mercer University Drive be widened to four lanes in each direction.

The simulation also shows that the lack of capacity for traffic exiting I-16 eastbound at Spring

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Street creates back-ups through the I-16/I-75 interchange and along northbound I-75 between Hardeman Avenue and I-16 during the PM peak hour. The Alternative 9 Build condition drastically improves the overall capacity of the transportation corridor compared with the No-Build condition.

#### Analysis of Ramp Junctions

Ramp junction analysis was performed for all ramp junctions under the year 2036 No-Build alternative and the preferred Build alternative. Results of all the ramp junction analysis are shown in Table 5: Year 2036 Ramp Junction LOS Analysis Results.



**Attachment #1 – Need and Purpose****Table 6: Year 2036 Ramp Junction LOS Analysis Results**

Ramp Junctions	No-Build		Build	
	AM (LOS)	PM (LOS)	AM (LOS)	PM (LOS)
NHIM0-0075-01 (214), P.I. No. 311560 (I-75/Hardeman Ave/Forsyth Street Interchange)*				
I-75 northbound diverge to Forsyth Street	F	D	C	B
Forsyth Street Ramp merge with I-75 southbound	C	F	C	D
NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104), NHIM0-0016-01 (092) P.I. Numbers 311005, 311400, 311410, 311000				
Hardeman Avenue merge with I-75 northbound	C	C	B	B
I-75 southbound CD diverge to Hardeman Ave			D	B
I-75 southbound diverge to Hardeman Ave	C	D		
I-75 northbound diverge to I-16 eastbound	C	D	B	C
I-75 southbound CD merge with I-75 southbound			A	B
I-16 westbound merge with I-75 southbound	D	E	A	B
I-16 eastbound diverge to Spring Street	C	C	D	B
I-16 eastbound CD diverge to Spring St.			A	B
Spring Street merge with I-16 eastbound	C	C		
I-16 eastbound diverge to Coliseum Drive	C	C	C	B
I-16 westbound CD merge with I-75 southbound			C	B
I-75 northbound CD diverge to I-16 eastbound CD			B	C
Second Street merge with I-16 eastbound			B	A
Coliseum Drive merge with I-16 eastbound	B	B	C	B
I-16 westbound diverge to Coliseum Drive	B	D	B	D
I-16 westbound diverge to westbound CD			B	D
I-16 westbound diverge to Second Street	C	F		
Coliseum Drive merge with I-16 westbound	C	E	A	B
I-16 westbound CD diverge to I-75 northbound CD			B	B
Spring Street southbound merge with I-16 westbound	D	F		
Spring Street northbound merge with I-16 westbound	C	F		
I-16 westbound diverge to I-75 southbound	F	F	A	B
I-16 west-to-north CD merge with I-75 northbound	F	F	B	B
I-16 eastbound merge with I-75 northbound	D	D	B	A
I-16 westbound merge with I-75 northbound	F	F	A	B
NHIM0-0075-02 (211), P.I. No. 312090 (Widening of I-75 from Pierce Ave to Arkwright Rd)				
I-75 southbound diverge to I-16 eastbound	F	F	D	D
I-75 northbound diverge to Pierce Avenue	F	F	B	C
Pierce Avenue merge with I-75 northbound	D	F	B	C
I-75 southbound diverge to Pierce Avenue	F	E	C	C
Pierce Avenue merge with I-75 southbound	F	D	C	C

\* This project was analyzed with the recommended widening of I-75 mainline from Forsyth Street to Mercer University Drive included in the Build condition.

The ramp junctions have failing levels of service at many of the same locations as the failing freeway segments, indicating that the future traffic volume cannot be handled under a No-Build alternative. With the exception of the I-16 eastbound diverge to Coliseum Drive, the only ramp junctions to operate at a LOS D or better during both the AM and PM peak hours are along I-75

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between Hardeman Avenue and I-16, along I-16 between I-75 and Spring Street, and along I-16 east of Coliseum Drive. These also happen to be the only three freeway segments found to operate at LOS D or better under the HCS analysis. Similar to the freeway segment analysis, all of the ramp junctions under the Build condition (Alternative 9) would operate at LOS D or better.

### Analysis of Weaving Areas

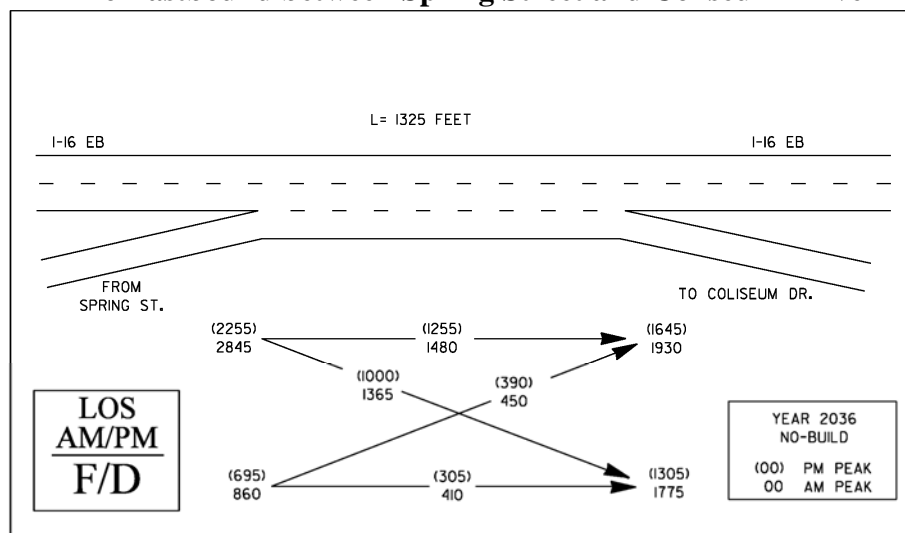
Two weaving areas on I-16 were analyzed under the 2036 No-Build condition. The results are provided below in Table 6: Year 2036 No-Build Weaving Area LOS Analysis Results. For the No-Build condition, both were identified and analyzed as type “A” weaving areas, or *ramp-weave sections*, consisting of an on-ramp closely followed by an off-ramp, where an auxiliary lane joins the two. The geometric configuration of a type “A” weave must require one vehicular lane transition to successfully complete the weaving maneuver. For a type “A” weave analysis, the length of the weaving segment cannot exceed 2,500 feet. The two weaving segments for the No-Build condition, shown in Figure 4: Weaving Diagram – I-16 Eastbound between Spring Street and Coliseum Drive and Figure 5: Weaving Diagram - I-16 Westbound between Coliseum Drive and Second Street, are projected to operate at LOS F during either the AM or PM peak hour.

**Table 7: Year 2036 No-Build Weaving Area LOS Analysis Results**

Freeway	Weaving Area Limits (From/To)	Type	Dir.	N*	Length	AM	PM
I-16	Spring Street on-ramp to Coliseum Drive off-ramp	A	EB	3	1325	F	D
	Coliseum Drive on-ramp to Second Street off-ramp	A	WB	3	1200	E	F

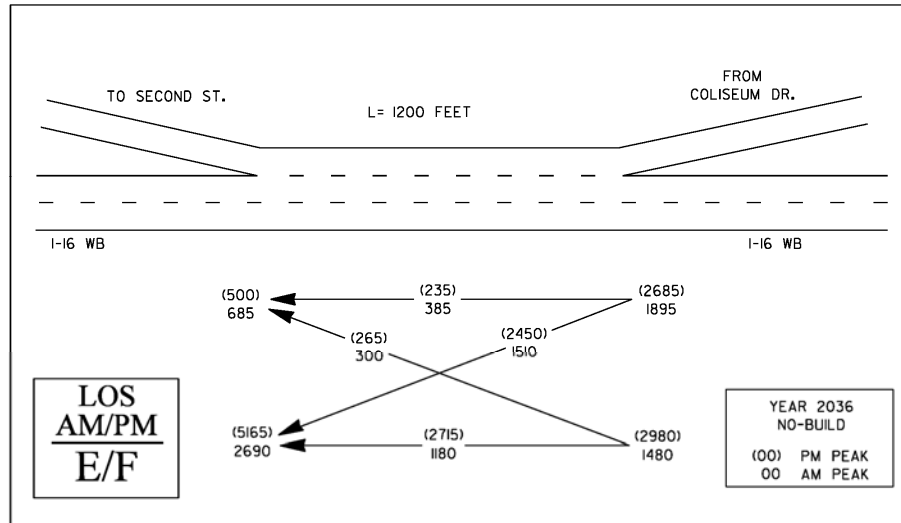
\* Indicates the number of lanes for that particular segment.

**Figure 3: Weaving Diagram  
I-16 Eastbound between Spring Street and Coliseum Drive**



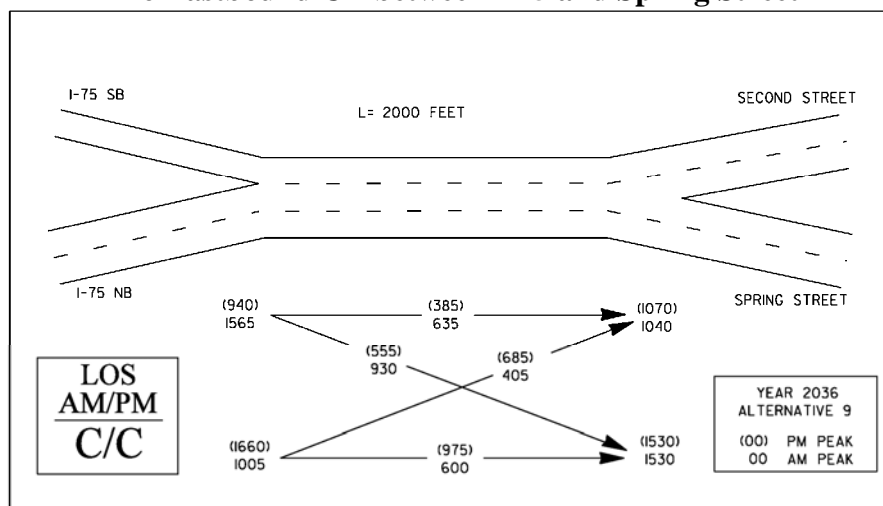
## Attachment #1 – Need and Purpose

**Figure 4: Weaving Diagram  
I-16 Westbound between Coliseum Drive and Second Street**



For the Build Condition, the change in configuration of the freeway system and the addition of a collector-distributor (CD) road system has eliminated the level and type of weaving traffic that occurs along the I-16 mainline. The proposed CD system allows traffic that would normally utilize I-16 to utilize the CD roads for ramp movements. The type “A” weaves that exist in the No-Build condition no longer exist in the Build (Alternative 9) condition; however, a type “B” weave exists on the I-16 eastbound CD system between the I-16/I-75 interchange and the Second Street off-ramp. This segment is projected to operate at LOS C for both the AM and PM peak periods, as shown in Figure 6: Weaving Diagram – I-16 Eastbound CD between I-75 and Spring Street.

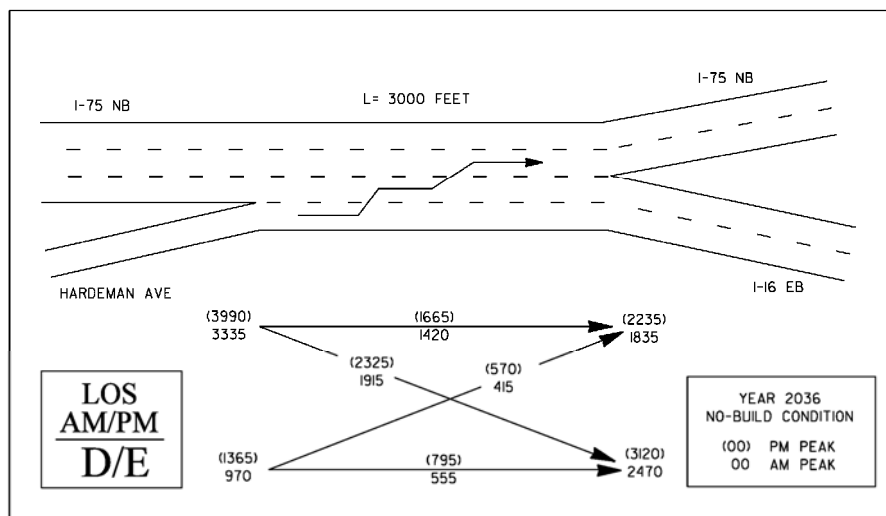
**Figure 5: Weaving Diagram  
I-16 Eastbound CD between I-75 and Spring Street**



## Attachment #1 – Need and Purpose

Under the No-Build condition, the weaving segment of I-75 northbound between the Hardeman Avenue entrance ramp and I-16 split was evaluated even though the length of the weave exceeds 2,500 feet. This weave is a type “C”, where motorists must transition two lanes to continue on I-75 northbound. The results of the analysis indicate that this weave is operating at a LOS D and LOS E during the AM and PM peak hours, respectively, as shown in Figure 7: Weaving Diagram - I-75 Northbound between Hardeman Avenue and I-16.

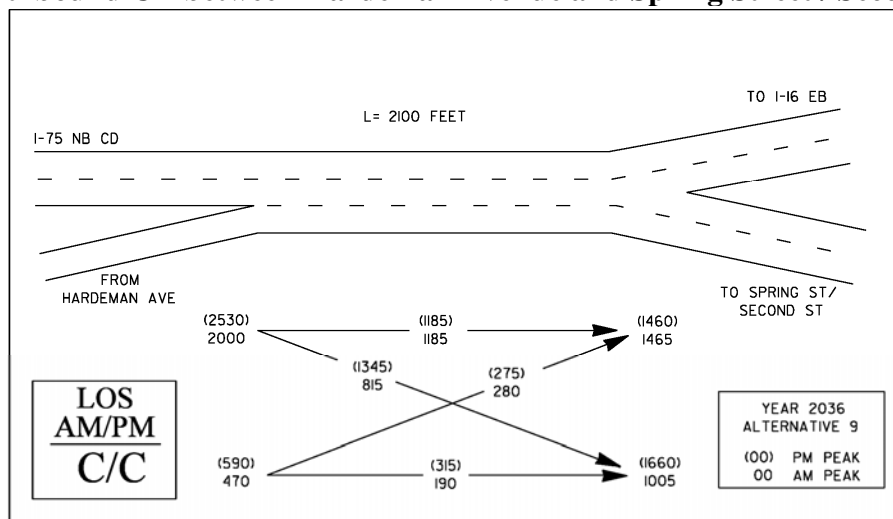
**Figure 6: Weaving Diagram  
I-75 Northbound between Hardeman Avenue and I-16**



Under the Build condition, this weave is eliminated; however, Alternative 9 has a weaving segment on the I-75 northbound CD road between Hardeman Avenue and Spring Street/Second Street. This weaving segment will operate at LOS C during both the AM and PM peak hours as shown in Figure 8: Weaving Diagram – I-75 Northbound CD between Hardeman Avenue and Spring Street/Second Street.

## Attachment #1 – Need and Purpose

**Figure 7: Weaving Diagram**  
**I-75 Northbound CD between Hardeman Avenue and Spring Street / Second Street**



### Analysis of Signalized Intersections

Intersection capacity analysis for 2036 No-Build and Build conditions was conducted and the results are summarized in Table 7: Year 2036 Build Intersection LOS and (Vehicle Delay) Analysis Results.

**Table 8: Year 2036 Build**  
**Intersection LOS and (Vehicle Delay) Analysis Results\***

Intersection	No-Build		Build	
	AM LOS (delay)	PM LOS (delay)	AM LOS (delay)	PM LOS (delay)
Spring Street @ I-16 westbound on-ramp/Emery Hwy	F (119.8)	B (19.9)	B (16.8)	B (16.1)
Spring Street @ I-16 eastbound off-ramp	E (79.4)	E (73.8)	C (33.8)	C (34.9)
Second Street @ I-16 eastbound off-ramp			C (23.5)	C (32.1)
Second Street @ I-16 westbound off-ramp **	F (184.0)	F (704.4)	B (17.7)	B (15.1)
Coliseum Drive @ I-16 westbound off-ramp **	F (1301)	F (>12000)	C (23.6)	D (38.4)
Coliseum Drive @ I-16 eastbound off-ramp	F (119.4)	F (446.4)	D (42.0)	D (50.3)
Coliseum Drive @ Riverside Drive	B (19.7)	E (61.7)	C (21.8)	D (54.7)

\* Values are given in seconds per vehicle delay

\*\* Unsignalized analysis for the No-Build Condition only

The results indicate that the proposed intersections would operate at an acceptable LOS D or better under the year 2036 Build condition. These levels of service indicate an improvement compared to the year 2036 No-Build analysis, in which all but one intersection would operate at

**Attachment #1 – Need and Purpose**

LOS E or F during one or both peak hours.

In summary, future traffic conditions with regards to the overall freeway system, CD system, and surface street network operate significantly better under the proposed Build scenario. The full extent of the project impact is measured in terms of the capacity and improved operational level of service on key freeway segments, weaving segments, and ramp junctions.

**D. SAFETY CONSIDERATIONS**

Crash data also indicates the need for major improvements to the congested I-16/I-75 interchange. From 2001 through 2008, there were 3,433 crashes on the mainline of the two interstates (see Table 5, Crash, Injury, and Fatality Rates for I-16/I-75). As a result of these crashes, 1,508 injuries and 3 fatalities were recorded in the proposed project area. In 2008, the most recent year for crash data tabulation, there were 332 crashes on the combined I-75 and I-16 interstates of the project area. For 2008, the crash rate on the portions of I-16 to be reconstructed was nearly twice the statewide rate for comparable interstates.

**Table 5: Crash, Injury, and Fatality Rates for I-16/I-75**

Year	Total No. of Crashes	I-16 Crash Rate	Statewide Crash Rate	Total No. of Injuries	I-16 Injury Rate	Statewide Injury Rate	Total No. of Fatalities	I-16 Fatality Rate	Statewide Fatality Rate
2001	255	574	201	160	360	51	1	2	0.81
2002	280	654	204	152	355	49	0	0	0.54
2003	264	718	200	125	340	48	1	3	0.71
2004	247	591	190	112	268	44	0	0	0.59
2005	250	480	206	93	179	49	0	0	0.77
2006	215	409	200	87	165	46	0	0	0.73
2007	215	358	186	106	177	43	0	0	0.58
2008	222	370	187	93	155	43	0	0	0.62
Year	Total No. of Crashes	I-75 Crash Rate	Statewide Crash Rate	Total No. of Injuries	I-75 Injury Rate	Statewide Injury Rate	Total No. of Fatalities	I-75 Fatality Rate	Statewide Fatality Rate
2001	246	269	201	115	125	51	1	1	0.81
2002	237	253	204	83	89	49	0	0	0.54
2003	244	254	200	84	87	48	0	0	0.71
2004	144	155	190	54	58	44	0	0	0.59
2005	185	209	206	85	96	49	0	0	0.77
2006	221	247	200	81	90	46	0	0	0.73
2007	98	147	186	37	56	43	0	0	0.58
2008	110	165	187	41	62	43	0	0	0.62

*All Rates are crashes, injuries, or fatalities per 100 million travel miles.*

*Source: Georgia Department of Public Safety, Crash Reporting Unit.*

In 2008, there were 134 injuries resulting from traffic crashes on the combined I-75 and I-16 interstates in the project area. In 2008, the injury rate on the portions of I-16 to be reconstructed was approximately 3.6 times the statewide rate and for I-75 was 1.4 times the statewide rate for comparable interstates.

### **Attachment #1 – Need and Purpose**

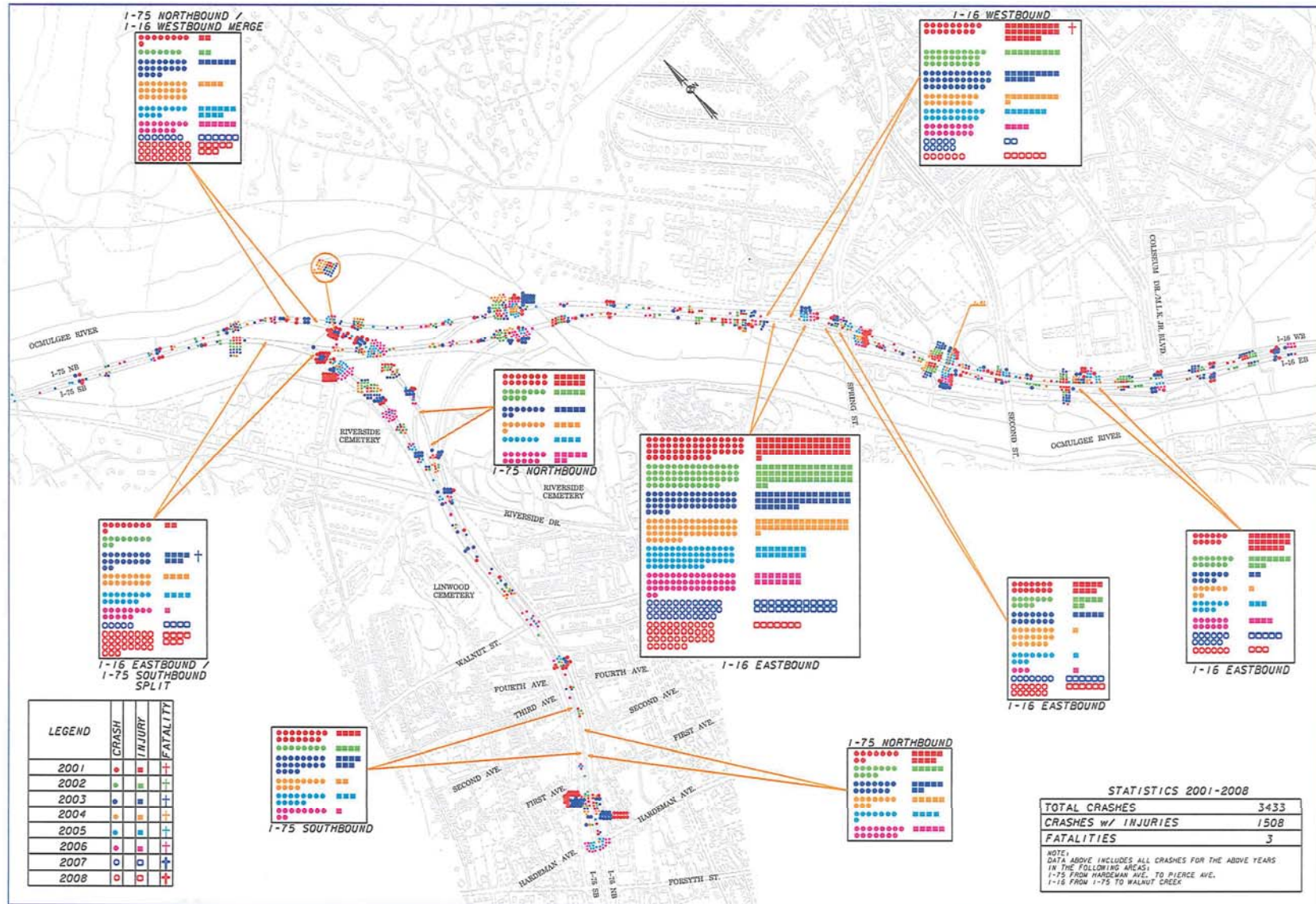
The combined crash data for the proposed reconstruction of the I-16/I-75 interchange and three additional interchanges indicates that both crashes and injuries exceed the statewide rate on these two urban interstates. One fatality occurred in 2003 and contributed to a fatality rate of three (3) fatalities per 100 million vehicle miles of travel. Two other fatalities occurred in 2001 on both I-75 and I-16 and were computed at the rate of one (1) and two (2) fatalities per 100 million vehicle miles, respectively. The statewide rate for fatalities for comparable interstates in 2003 was 0.71 and 0.81 in 2001. A further evaluation of the data on these two interstates indicates distinctive crash patterns, which suggests different causes for the high number of crashes on each of the freeways. This evaluation is presented in the paragraphs below.

An analysis of the 2008 crash data on the I-16 portion of the project indicates that 47 percent of these crashes were rear-end collisions. This high number of rear-end collisions coupled with the high number of injuries as a result of these crashes indicates that the traffic congestion on I-16 in downtown Macon results in a high number of moving vehicles crashing into decelerating or stopped vehicles. These types of crashes are common when vehicles exiting I-16 queue onto the mainline of the interstate. This situation can occur unexpectedly for drivers on the interstate, causing rear-end collisions because driver decision time is too short to react properly. The crash data supports the need to separate local traffic destined for the downtown Macon exits from through traffic on I-16. Through traffic would then encounter less decelerating or stationary traffic on the mainline of I-16.

A further evaluation of the crash data on the I-75 portion of the project indicates that rear-end collisions accounted for 33 percent of the crashes. Sideswipe/angle collisions accounted for 22 percent of all crashes on I-75 and 24 percent on I-16. In addition, 32 percent of the crashes on I-75 involved cars colliding with objects off the road. This crash data is suggestive of problems with weaving, sight distances, and short driver decision time. One previous example of this occurs on southbound I-75 just north of the I-16 split. Motorists' view of the approaching I-16/I-75 split is obscured due to the existing horizontal and vertical geometry entering this interchange. At this point drivers have very little decision time to weave into the appropriate lane to continue on I-75 south or to transition to eastbound I-16. A second example would be the merge of westbound I-16 with southbound I-75. Driver decision time and weaving opportunities are inadequate for drivers exiting on Hardeman Avenue or Forsyth Street. The proposed improvements will address these existing conditions.

A summary of the crash data is illustrated on Figure 1.4: I-16 and I-75 Crash Data Diagram. This diagram shows the location that the crashes are occurring on the I-75 and I-16 mainlines. The section of I-16 that has the most crashes for all eight years is between I-75 and the Spring Street Interchange. Most of the crashes occur prior to the gore point, which is the final decision point between exiting to Spring Street and continuing on I-16 eastbound. The weaving section on I-16 eastbound between I-75 and Spring Street is a "Type C" weave, which is characterized as a weaving section that requires two vehicular lane changes to successfully complete the weaving maneuver. As shown in Figure 8, crashes can be directly attributed to an inability to negotiate lane changes in this weaving section.

**Attachment #1 – Need and Purpose**  
**Figure 8: I-16 and I-75 Crash Data Diagram**





### **Attachment #1 – Need and Purpose**

The section of I-16 that has the second highest number of accidents is the merge point between I-16 westbound mainline and the Spring Street on-ramps. Currently, the loop ramp from Spring Street joins the westbound mainline with a parallel acceleration lane that abruptly ends with a short taper. The tapered end of the lane is hidden from sight by the vertical crest of the I-16 bridge over Spring Street. At this point, drivers have very little decision time to merge onto I-16. Additionally, this merge point is closely followed by the two-lane ramp merge from southbound Spring Street. The two-lane on-ramp merges the left lane with I-16 instead of the right lane. Therefore motorists in the left lane are forced to merge with I-16 or merge into the right lane. This merge does not give drivers enough decision time or lane-changing opportunities and frequently results in sideswipe collisions.

It is anticipated that the operational efficiency improvements proposed for the I-16/I-75 interchange as well as improvements to other interchanges in the project area would create safer facilities for the motoring public. The increase in operational efficiency on both I-16 and I-75 would allow an improved LOS with less congestion, reduced driver stress, improved sight distances, and reduced weaving movements/conflict points, which should result in fewer crashes.

### **E. STORM EVACUATION**

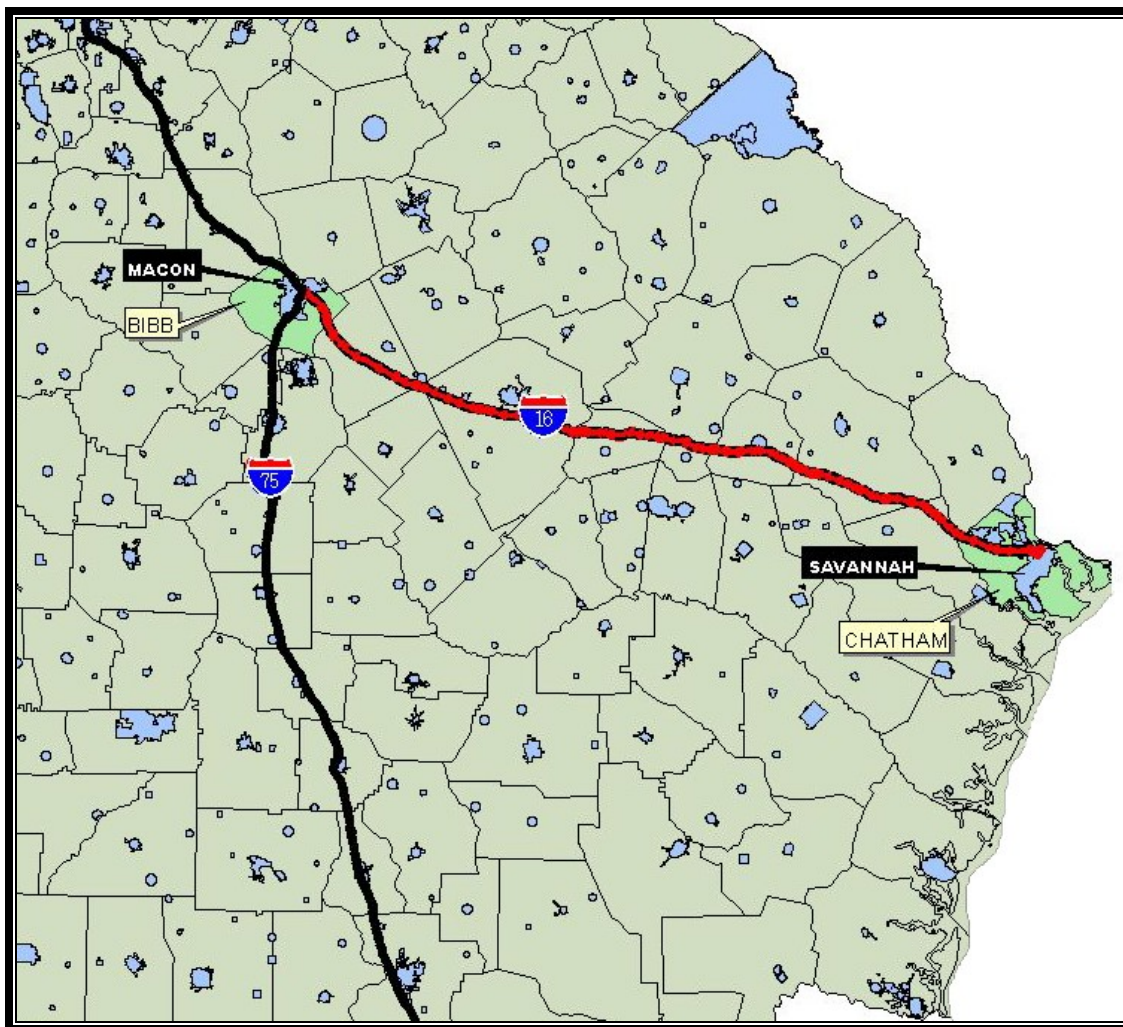
In 1999, Hurricane Floyd threatened the Georgia coast and evacuation of coastal areas was advised. Eastbound traffic was halted on I-16 and all lanes were used for the westbound evacuation. The I-16/I-75 interchange, which currently provides a single lane for the movement from I-16 westbound to I-75 northbound, proved to be a major bottleneck for traffic headed away from coastal areas (see Figure 3, Regional Location Map). As a result, GDOT commissioner Wayne Shackelford announced to the *Atlanta Journal Constitution* that plans were underway to re-engineer this interchange to improve future evacuations.

The proposed project directly addresses the hurricane evacuation route capacity issue by widening the ramp from I-16 westbound to I-75 northbound from one to two lanes. Other improvements within the project corridor that would benefit hurricane evacuation include:

- Construction of the westbound CD road adjacent to I-16. The two-lane CD road would provide additional capacity through downtown Macon in an evacuation event.
- Construction of 12-foot shoulders on the interstate mainline. The primary purpose for the wide, paved shoulders is to provide refuge for disabled vehicles and access for emergency vehicles. During an evacuation event, the shoulders could be utilized for additional capacity through downtown Macon.

## Attachment #1 – Need and Purpose

Figure 9: Regional Location Map



### F. LOGICAL TERMINI

The northwestern logical terminus for the proposed improvements to the I-16/I-75 interchange is a point just southeast of the I-75/Pierce Avenue interchange, which is approximately 1.8 miles to the northwest of the I-16/I-75 interchange. The Pierce Avenue interchange is located at a sufficient distance from the I-16/I-75 interchange such that all operational deficiencies identified within the I-16/I-75 interchange project would be addressed prior to reaching this location. Therefore, improvements to the I-75/Pierce Avenue interchange are not needed to improve the operations of the I-16/I-75 interchange. The proposed improvements to correct the horizontal and vertical alignment inadequacies at the I-16/I-75 interchange southbound split, coupled with a sight distance problem for southbound traffic approaching the I-16/I-75 interchange at the I-75 bridge over the Norfolk Southern Railroad, requires that improvements to I-75 be extended back to a point just southeast of Pierce Avenue. These improvements are necessary to correct sight distances and to lengthen driver decision time for traffic making the transition from southbound I-75 to eastbound I-16. The reduced sight distance results in erratic

### **Attachment #1 – Need and Purpose**

weaving and preventable crashes. In order to address this condition, the I-75 profile and alignment must be altered to a point well north of the bridge over the railroad. Additionally, a separate project is underway to improve the I-75/Pierce Avenue interchange and the section of I-75 between the I-75/Pierce Avenue interchange and the I-75/Arkwright Road interchange [Project NHIM0-0075-02(211)]. This project is currently in the right-of-way phase and anticipated to be constructed prior to construction of the I-16/I-75 project. The proposed I-16/I-75 project would match the six-lane section of the Pierce to Arkwright project to provide lane continuity on I-75; therefore the southeast terminus of this project would be the logical northwestern terminus of the I-16/I-75 project.

The eastern logical terminus for the proposed improvements to I-16 is east of the I-16/Coliseum Drive interchange, which is located approximately 1.6 miles southeast of the I-16/I-75 interchange. The identified problems are the signage, weaving movements between closely spaced interchanges, and exiting traffic queuing onto the mainline of I-16. The completion of the proposed improvements would address these problems.

The next I-16 interchange east of Coliseum Drive is I-16/SR 87. This interchange is located several miles to the east of Coliseum Drive. No weaving or other operational deficiencies related to the I-16/I-75 interchange have been identified east of the I-16/Coliseum Drive interchange. Operational improvements would, therefore, end at the I-16/Coliseum Drive interchange, with the tapering of lanes and restriping continuing for approximately 4,300 feet east of this interchange to accommodate the transition back to the existing lane configuration of I-16.

The 2005 AADT on I-16 west of the Coliseum Drive interchange was 52,120 (LOS D in 2005). The 2005 AADT east of the Coliseum Drive interchange was 35,680 (LOS B in 2005). As this traffic data illustrates, the Coliseum Drive interchange handles a substantial volume of ingress/egress traffic, and traffic volumes on the interstate mainline drop by 32% east of this interchange. This break in traffic volume combined with the absence of the weaving problem east of the I-16/Coliseum Drive interchange makes this interchange the logical eastern project terminus.

Currently I-75 Southbound (SB) has a left hand access at the I-16 interchange, which creates reduced driver expectancy, poor lane continuity, and unacceptable weaving movements on mainline I-75 SB between Hardeman Avenue and I-16. In order to correct these operational deficiencies, the southern logical terminus for the proposed improvements to the I-16/I-75 interchange is north of the I-75/Hardeman Avenue/Forsyth Street interchange, which is approximately 1.1 miles south of the I-16/I-75 interchange. The I-75/Hardeman Avenue/Forsyth Street interchange is located a sufficient distance south of the I-16/I-75 interchange such that all operational deficiencies identified in the I-16/I-75 interchange would be addressed prior to this location. Therefore, improvements south of the I-75/Hardeman Avenue/Forsyth Street interchange are not necessary to improve operations of the I-16/I-75 interchange. A separate GDOT project to improve the I-75/Hardeman Avenue/Forsyth Street interchange is also planned, which concentrates primarily on the ramp location, access issues, and capacity and operations of Hardeman Avenue and Forsyth Street rather than I-75 mainline operations.

## **Attachment #1 – Need and Purpose**

### **G. RELATIONSHIP TO STATEWIDE AND LOCAL TRANSPORTATION PLANS**

The proposed improvements to the I-16/I-75 interchange from Pierce Avenue to the northwest, Coliseum Drive to the east, and Hardeman Avenue to the south, are included in the Macon Area Transportation Study's (MATS) Adopted Transportation Plan and the Transportation Improvement Program (TIP). Project NHIM0-0016-01(092), the widening/reconstruction of I-16 from SR 11 to SR 87, is in the TIP as MCN-10. Project NHIM0-0016-01(131), the widening of the I-16 bridge at Martin Luther King Drive, is in the TIP as MCN-66. Project NHIM0-0075-02(177), the widening/reconstruction of I-75 from County Route 478 to I-16, is in the TIP as MCN-13. Project NH000-0016-01(104), the reconstruction of the I-16/I-75 interchange, is in the TIP as MCN-9.

### **OTHER ROAD IMPROVEMENT PROJECTS IN THE AREA**

Other road improvement projects in the area of the proposed project include the proposed improvements to the I-75/Hardeman Avenue/Forsyth Street interchange (see Figure 10). This planned improvement concentrates primarily on the ramp location, access issues, and capacity and operations of Hardeman Avenue and Forsyth Street rather than I-75 mainline operations. This project, IMNH0-0075-01(214), is in the TIP as MCN-4, and is also identified as P.I. No. 311560. Improvements proposed with P.I. No. 311560 are restricted to the connecting ramps between Hardeman Avenue and Forsyth Street, and the addition of a dual right turn from the northbound I-75 exit ramp to eastbound Forsyth Street. These improvements are beyond the limits of construction for the I-16/I-75 project (PI 311410), which will be restricted to the ramps north of Hardeman Avenue. The improvements with these projects are not inter-dependant and neither project would preclude work by the other. This project is currently in Long Range and is still in the concept phase.

Project NHIM0-0075-02(211) proposes to reconstruct I-75 from a four-lane road to a six-lane road from Pierce Avenue to Arkwright Road. Preliminary Plans for this project are complete and right-of-way acquisition is in-progress. Construction is currently programmed for FY 2010 and the project letting is scheduled for November 2009. A sound barrier was determined to be necessary along I-75 northbound adjacent to this project [NHIM0-0075-02(211)] and the adjacent part of the I-75/I-16 project [NHIM0-0075-02(177)]. The Department is proposing to construct the entire length of this barrier with project NHIM0-0075-02(211). There are not any existing or proposed utilities within the interstate right-of-way that require coordination between these projects. Interstate lighting will be coordinated as part of the final design process for both projects.

Project STP-000E(198) proposes to construct the Ocmulgee Heritage Greenway multi-use path along the Central of Georgia Railroad on the southwest side of the Ocmulgee River. This project is presently in the concept development phase.

Project STP-3223(4)/BRMLB-3223(6), STP-3223(2), STP-3223(5), and STP-0000-00(835) would widen Jeffersonville Road from a two-lane rural section to a five-lane urban section from Emery Highway (US 23, US Alt 129, SR 19, SR 87) to Emery Road (US 80, SR 57), and would widen Millerfield Road from a two-lane rural section to a five-lane urban section from

### **Attachment #1 – Need and Purpose**

Jeffersonville Road to New Clinton Road. This project is currently in the preliminary engineering phase and right-of-way is programmed for FY 2009.

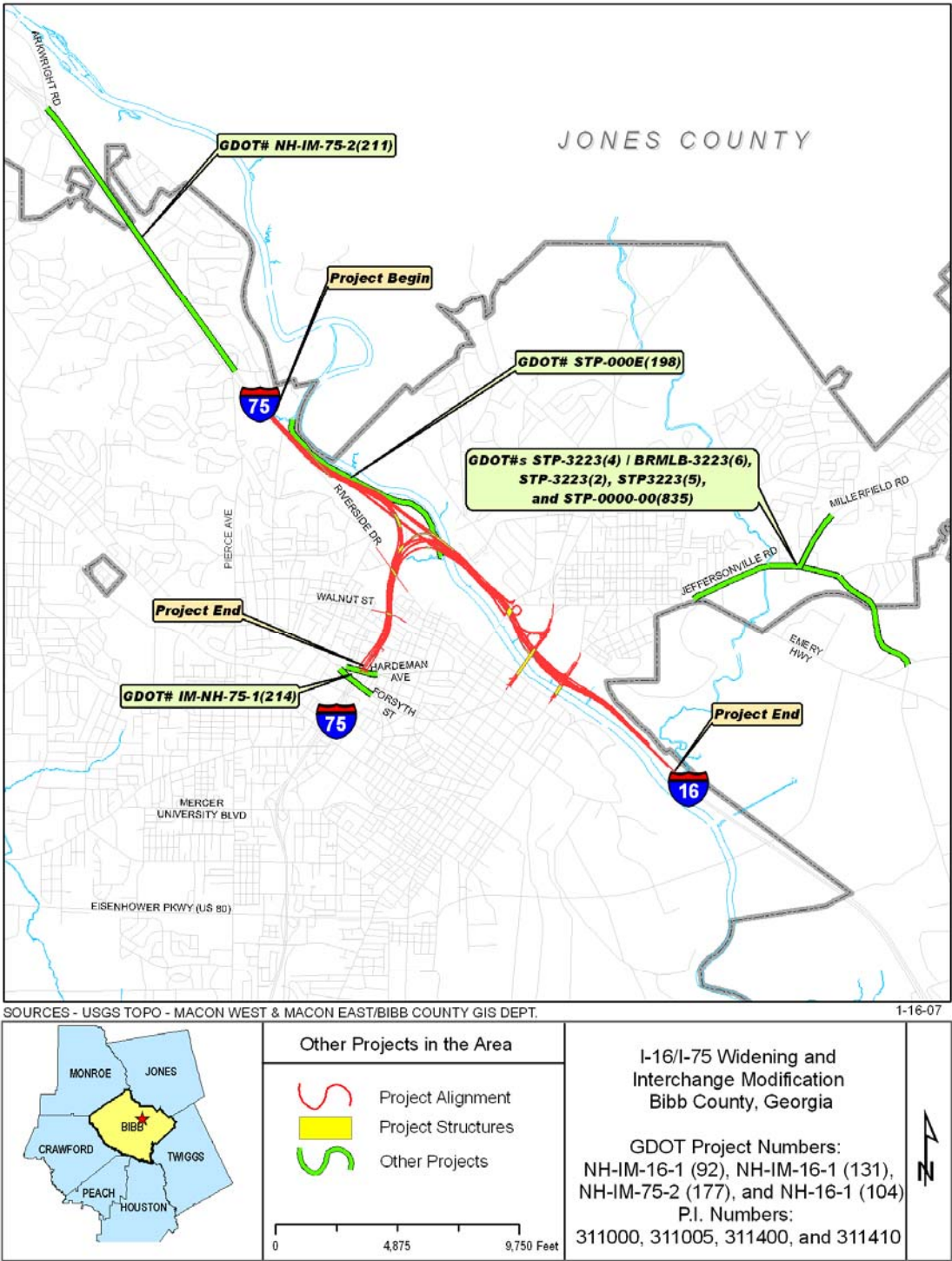
Projects NH000-0016-01(191) proposes to extend Eisenhower Parkway from its existing terminus at Lower Boundary Street in East Macon over to Emery Highway on the north side of I-16. This project is presently in the environmental phase and the specific project alternative has not yet been determined; therefore, the location of this project has not been identified on Figure 5.

### **H. ENVIRONMENTAL JUSTICE COMMUNITIES**

Within the project corridor, one community (Pleasant Hill) was determined to contain both low income and minority populations. The Pleasant Hill neighborhood is located along both sides of I-75 between Hardeman Avenue and Walnut Street. The neighborhood was divided by the original interstate construction in the 1960's. This community will be studied and considered for potential Environmental Justice (EJ) concerns as required by Executive Order (EO) 12898.

Attachment #1 – Need and Purpose

Figure 10: Other Road Improvement Projects in the Area





Revised Project Concept Report

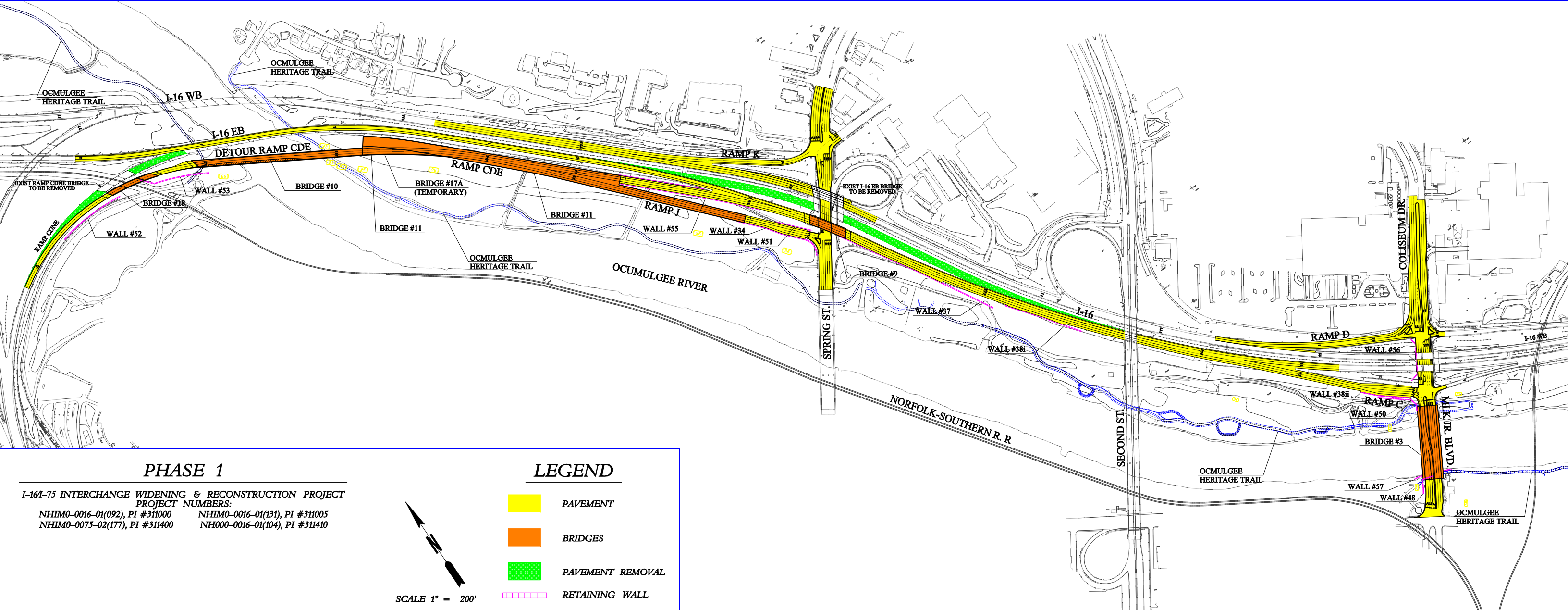
Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410

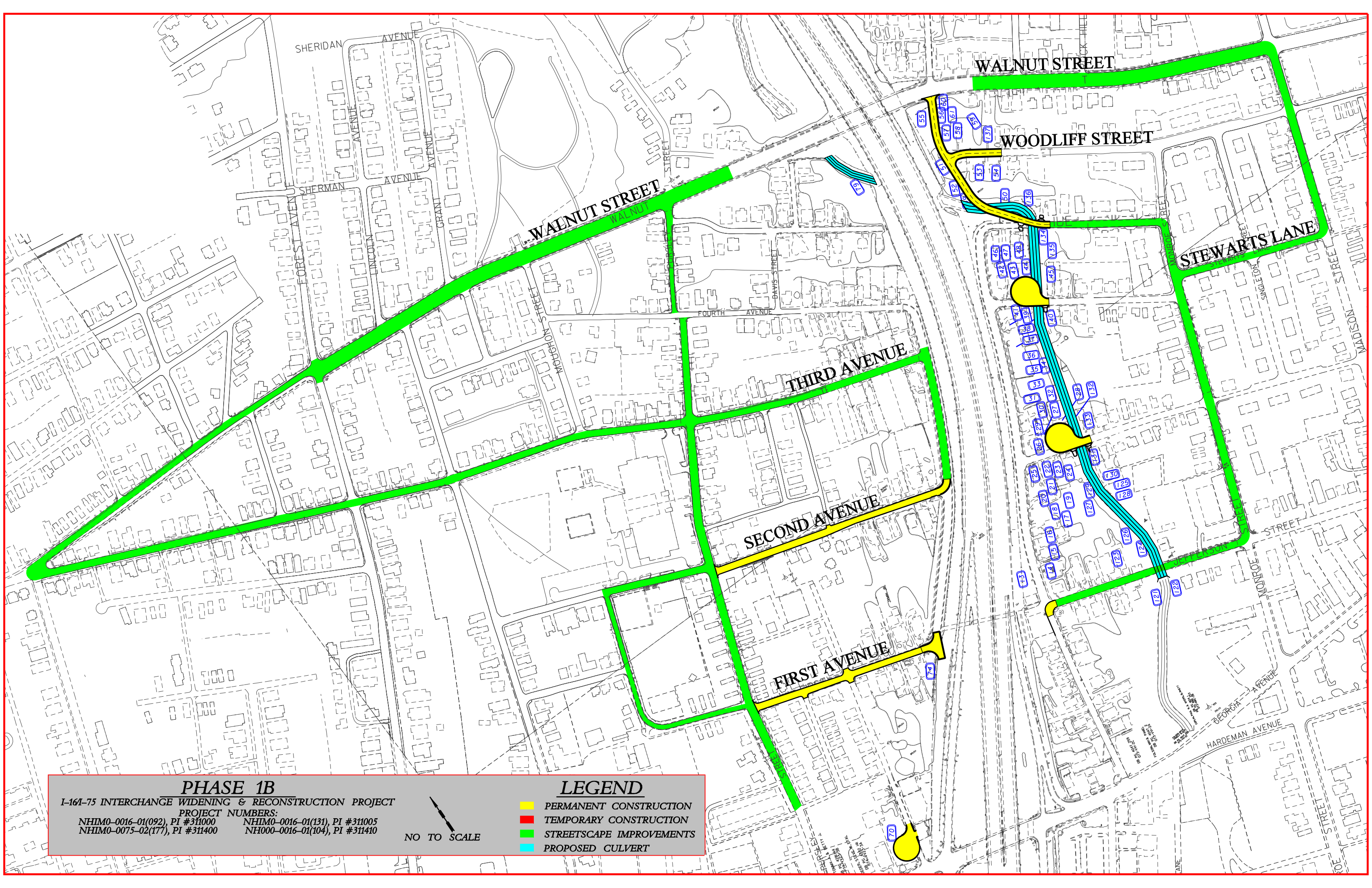
County: Bibb County

## **ATTACHMENT #2**

### **SKETCH MAPS OF EACH PHASE**







**PHASE 1B**

**I-161-75 INTERCHANGE WIDENING & RECONSTRUCTION PROJECT**

**PROJECT NUMBERS:**

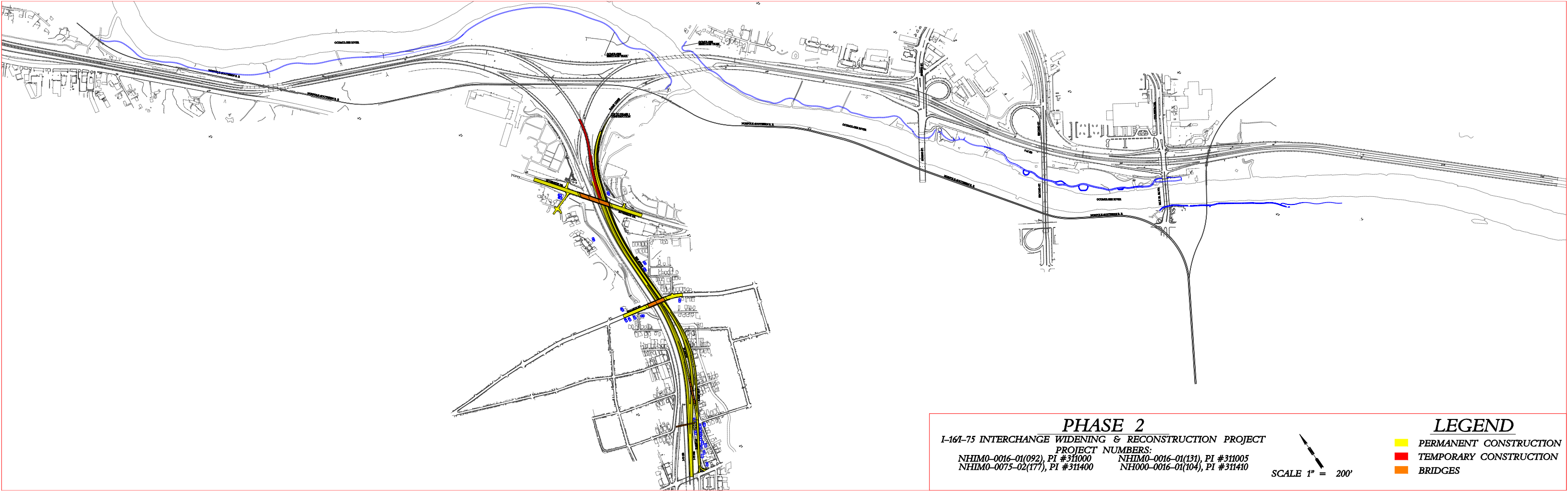
NHIM0-0016-01(092), PI #311000    NHIM0-0016-01(131), PI #311005

NHIM0-0075-02(177), PI #311400    NHIM0-0016-01(104), PI #311410

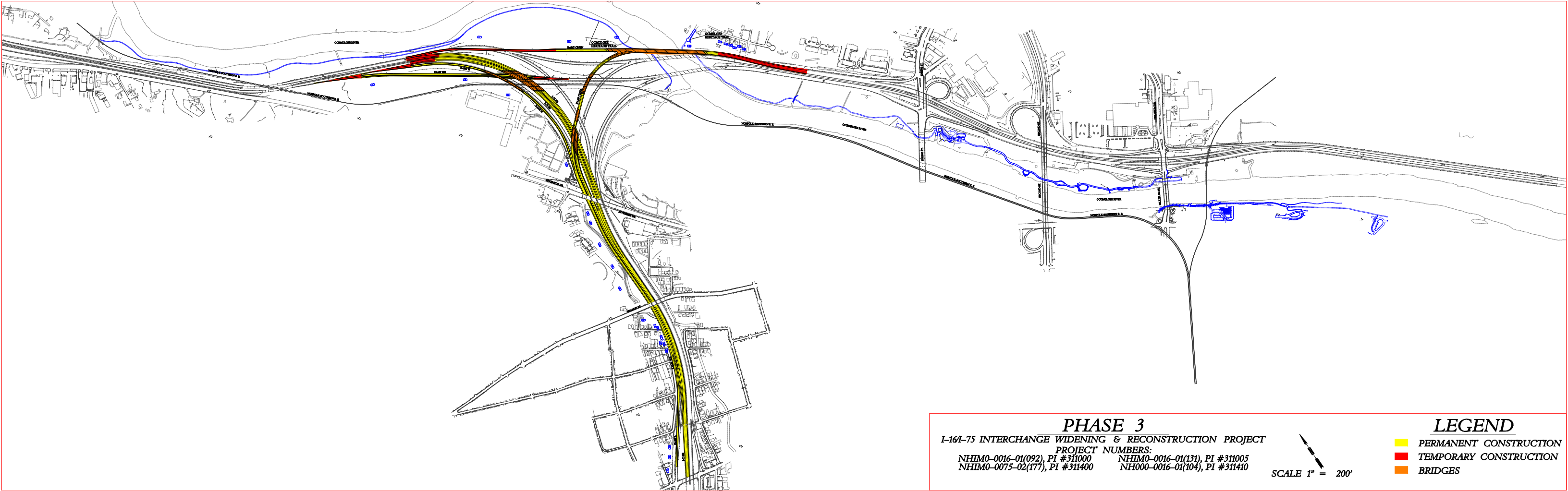
**LEGEND**

- PERMANENT CONSTRUCTION
- TEMPORARY CONSTRUCTION
- STREETSCAPE IMPROVEMENTS
- PROPOSED CULVERT

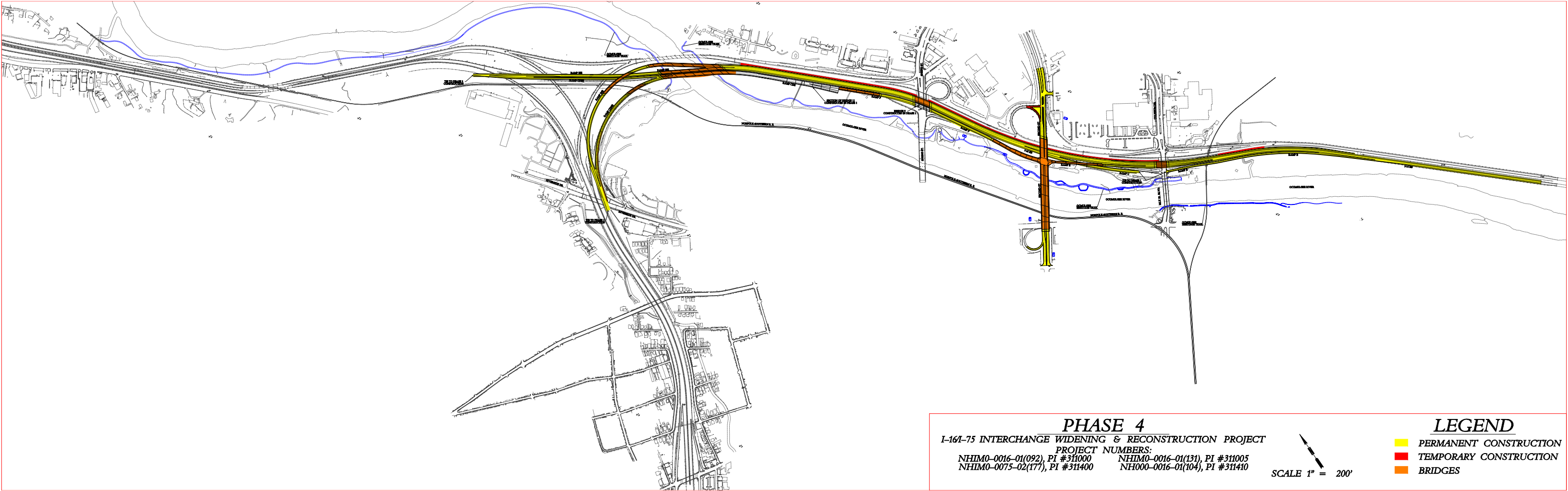
NO TO SCALE

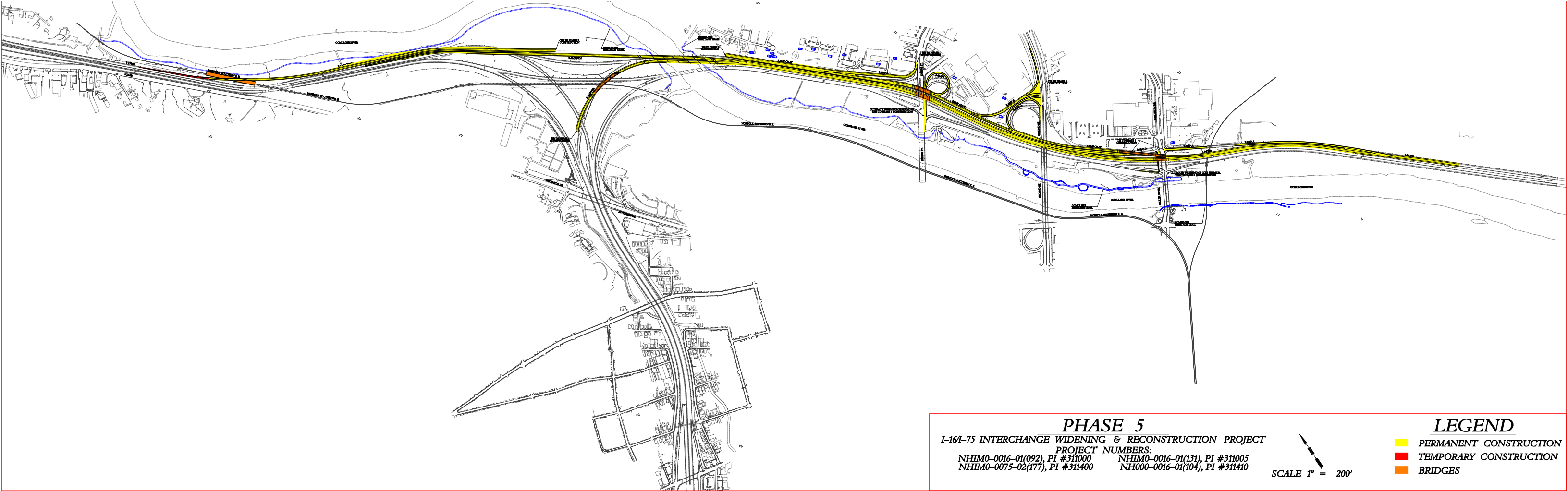












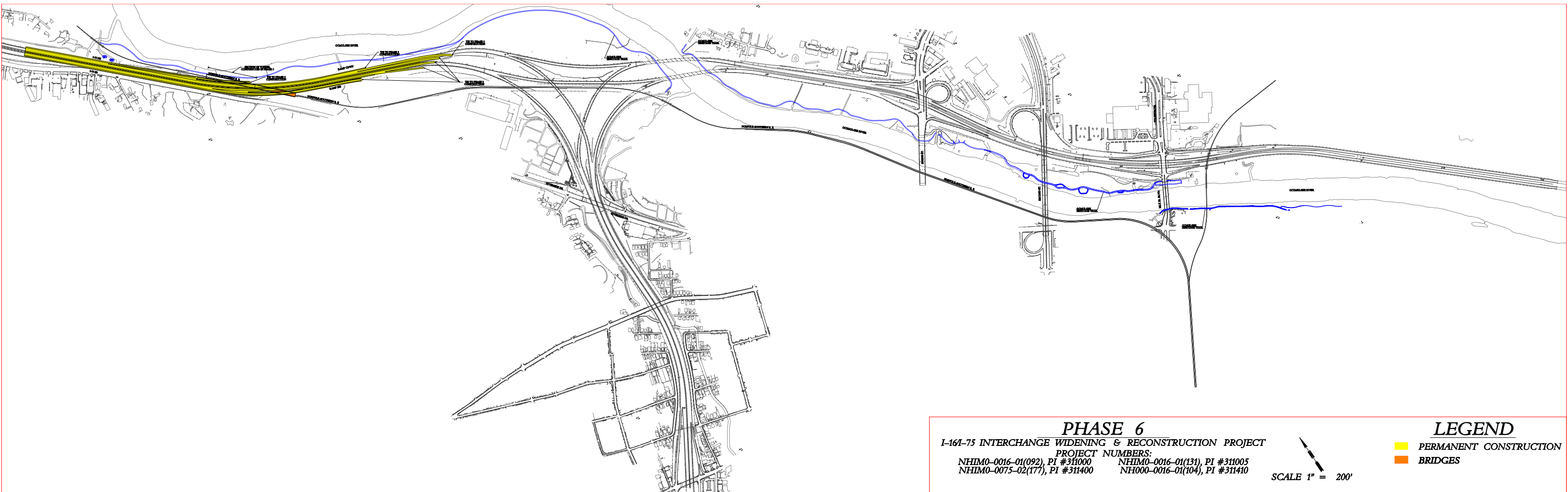
**PHASE 5**

**I-161-75 INTERCHANGE WIDENING & RECONSTRUCTION PROJECT**  
**PROJECT NUMBERS:**  
NHIM0-0016-01(092), PI #311000    NHIM0-0016-01(131), PI #311005  
NHIM0-0075-02(177), PI #311400    NH000-0016-01(104), PI #311410

SCALE 1" = 200'

**LEGEND**

- PERMANENT CONSTRUCTION
- TEMPORARY CONSTRUCTION
- BRIDGES



Revised Project Concept Report

Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410

County: Bibb County

## **ATTACHMENT #3**

### **COST ESTIMATES FOR EACH PHASE**

**I-16/I-75: SUMMARY OF PROJECT PHASING COSTS**

May 23, 2012

		PHASE 1	PHASE 1B	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	All 6 Phases
Project Costs									
A.	Construction Cost	\$33,479,119		\$22,958,983	\$45,194,140	\$74,971,954	\$58,776,148	\$26,807,341	\$262,187,685
	Mitigation Cost		\$10,285,484	\$2,271,930	\$2,201,349		\$2,020,200	\$1,897,392	\$18,676,355
	5% Engineering & Inspection	\$1,673,956	\$514,274	\$1,261,546	\$2,369,774	\$3,748,598	\$3,039,817	\$1,435,237	\$14,043,202
	Liquid AC Price Adjustment	\$377,455	\$44,302	\$362,497	\$625,892	\$437,417	\$437,417	\$239,912	\$2,524,892
B.	Construction Total	\$35,530,530	\$10,844,060	\$26,854,956	\$50,391,155	\$79,157,969	\$64,273,582	\$30,379,882	\$297,432,134
C.	Right of Way	\$145,000	\$6,878,000	\$2,755,000	\$395,000	\$69,000	\$3,665,000		\$13,907,000
D.	Reimbursable Utilities	\$539,083	\$5,732	\$23,835	\$58,056	\$89,609	\$576,930	\$29,245	\$1,325,000
E.	P&E	\$2,584,120	\$756,785	\$1,796,074	\$3,174,376	\$4,707,230	\$3,656,172	\$1,639,366	\$18,314,123
F.	<b>Total Cost per Phase</b>	<b>\$38,798,733</b>	<b>\$18,484,577</b>	<b>\$31,429,865</b>	<b>\$54,018,587</b>	<b>\$84,023,808</b>	<b>\$72,171,684</b>	<b>\$32,048,493</b>	<b>\$330,978,257</b>

**Total Project Cost (all phases)            \$330,978,257**

**Explanation of Mitigation Costs**

Phase 1B: Pleasant Hill Improvements (Streetscaping, Linear Park, Visual Barriers, 1700' Culvert, Middle Street Extension, Relocation of up to 21 residential structures)

Phase 2: Visual Barriers 1 and 3 (conc. panels - \$45/sf); Extra cost to use concrete panels for noise barriers 2 and 3 (\$21/sf)

Phase 3: Visual Barrier #2 (conc. panels - \$45/sf); Extra cost to use concrete panels for noise barriers 1 and 4 (\$21/sf)

Phase 5: Extra cost to use concrete panels for noise barrier #7 (\$21/sf)

Phase 6: Extra cost to use concrete panels for noise barriers 5 and 6 (\$21/sf)



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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P1 SPEC YEAR: 01  
DESCRIPTION: I-16 / I-75 PHASE 1

ITEMS FOR JOB 11516 P1

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	1500000.00	1500000.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	0.000	63835.52	0.00
0015	201-1500		LS	CLEARING & GRUBBING - PROJECT	1.000	100000.00	100000.00
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	2000000.00	2000000.00
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	45935.000	15.30	702943.76
0034	400-3624		TN	ASPH CONC 12.5 MM PEM,GP2,INCL P-MBM&HL	1896.000	96.93	183786.79
0035	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	4054.000	62.40	252972.48
0040	402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	492.000	79.70	39214.22
0045	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	15217.000	57.85	880358.54
0049	402-3600		TN	RECY AC 12.5,SMA,GP2 ON,INCLP-,BM&HL	3575.000	115.55	413117.10
0050	413-1000		GL	BITUM TACK COAT	10350.000	2.42	25087.05
0054	430-0620		SY	PLN PC CONC PVMT/HES/ 12" TK	54295.000	32.61	1770559.95
0055	433-1000		SY	REINF CONC APPROACH SLAB	1812.000	122.53	222027.39
0060	441-0014		SY	DRIVEWAY CONCRETE, 4 IN TK	1261.000	19.48	24569.87
0062	441-0740		SY	CONC MEDIAN, 4 IN	120.000	29.97	3597.20
0063	441-0748		SY	CONC MEDIAN, 6 IN	1406.000	38.60	54275.44
0064	441-3999		LF	CONCRETE V GUTTER	1045.000	16.56	17307.72
0065	441-4020		SY	CONC VALLEY GUTTER, 6 IN	91.000	36.42	3314.28
0070	441-0104		SY	CONC SIDEWALK, 4 IN	4577.000	18.19	83297.46
0075	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	1045.000	15.28	15976.40
0080	621-4086		LF	CONCRETE SIDE BARRIER, TP 7WS	3025.000	245.65	743091.25
0085	621-6008		LF	CONC SIDE BARRIER, TP 7-CS	81.000	135.00	10935.00
0090	621-6013		LF	CONC SIDE BARRIER, TP 7-TS	243.000	238.15	57871.27
0095	621-3125		LF	CONC BARRIER, TP 25S, MODIFIED	92.000	235.17	21636.27
0108	641-1100		LF	GUARDRAIL, TP T	367.000	43.51	15968.47
0109	641-1200		LF	GUARDRAIL, TP W	5790.000	14.84	85933.21
0114	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	4.000	619.27	2477.08
0119	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	8.000	1735.78	13886.29
0123	648-1350		EA	IMPACT ATT UNIT, TP-P- PROJECT	3.000	19867.57	59602.73
0124	441-0303		EA	CONC SPILLWAY, TP 3	2.000	1916.05	3832.10
0129	500-3101		CY	CLASS A CONCRETE	54.000	502.67	27144.21
0134	500-3800		CY	CL A CONC, INCL REINF STEEL	13.000	744.10	9673.36
0139	511-1000		LB	BAR REINF STEEL	7125.000	0.77	5518.81
0144	550-1180		LF	STM DR PIPE 18",H 1-10	1918.000	28.70	55050.59
0149	550-1240		LF	STM DR PIPE 24",H 1-10	1181.000	38.17	45085.18
0154	550-1241		LF	STM DR PIPE 24",H 10-15	367.000	36.36	13346.92
0159	550-1300		LF	STM DR PIPE 30",H 1-10	165.000	46.65	7697.62
0164	550-1360		LF	STM DR PIPE 36",H 1-10	432.000	55.78	24101.22
0169	550-1361		LF	STM DR PIPE 36",H 10-15	58.000	59.70	3462.91
0174	550-1480		LF	STM DR PIPE 48",H 1-10	53.000	73.23	3881.49
0179	550-1540		LF	STM DR PIPE 54",H 1-10	43.000	120.21	5169.45
0184	550-2361		LF	SIDE DR PIPE 36",H 10-15	177.000	69.00	12213.00
0189	570-1000		LS	CONST/MAIN/REM DET DR STR, NO- PROJECT	1.000	12100.00	12100.00
0194	668-1100		EA	CATCH BASIN, GP 1	24.000	1987.91	47710.00

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0199	668-1110	LF	CATCH BASIN, GP 1, ADDL DEPTH	59.000	146.62	8651.05
0204	668-1200	EA	CATCH BASIN, GP 2	1.000	2573.88	2573.89
0209	668-1210	LF	CATCH BASIN, GP 2, ADDL DEPTH	7.000	207.18	1450.28
0214	668-2100	EA	DROP INLET, GP 1	11.000	1861.88	20480.77
0219	668-2110	LF	DROP INLET, GP 1, ADDL DEPTH	12.000	149.63	1795.65
0224	668-2231	EA	DROP INLET,GP 1,MOD TP M-1	8.000	2523.50	20188.00
0229	668-4300	EA	STORM SEW MANHOLE, TP 1	3.000	1753.33	5259.99
0234	668-4311	LF	ST SEW MANHOLE,TP 1,A DEP,CL 1	4.000	178.52	714.12
0255	610-6510	EA	REM HWY SIGN, OVHD	2.000	435.89	871.78
0256	610-6515	EA	REM HIGHWAY SIGN, STD	23.000	47.28	1087.54
0261	610-6520	EA	REM HWY SIGN, SPCL ROADSIDE	14.000	442.17	6190.41
0266	610-9310	LS	REM STR SUPPORT, TP - PROJECT	1.000	3633.62	3633.62
0271	611-5360	EA	RESET HIGHWAY SIGN	7.000	200.00	1400.00
0275	611-5360	EA	RESET HIGHWAY SIGN	1.000	40.00	40.00
0276	636-1020	SF	HWY SGN,TP1MAT,REFL SH TP3	220.000	13.18	2901.60
0281	636-1029	SF	HWY SGN,TP2 MATL,REFL SH TP 3	42.000	14.25	598.74
0286	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	235.000	20.24	4756.62
0291	636-1041	SF	HWY SIGNS,TP 2MAT,REFL SH TP 9	85.000	36.93	3139.80
0294	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	340.000	19.93	6776.45
0295	636-1077	SF	HWY SIGN,ALUM EXT PL,REFL SHT,TP 9	1540.000	24.35	37507.89
0296	636-2070	LF	GALV STEEL POSTS, TP 7	225.000	7.43	1673.22
0301	636-2080	LF	GALV STEEL POSTS, TP 8	690.000	8.40	5799.39
0306	636-2090	LF	GALV STEEL POSTS, TP 9	275.000	6.65	1830.86
0311	636-5010	EA	DELINEATOR, TP 1	40.000	39.24	1569.79
0316	636-5011	EA	DELINEATOR, TP 1A	5.000	7.22	36.11
0321	636-5020	EA	DELINEATOR, TP 2	35.000	45.64	1597.46
0325	638-1001	LS	STR SUPPORT OVHD SIGN,TP I,STA PROJECT	1.000	67223.88	67223.88
0326	638-1003	LS	STR SUPPORT OVHD,SIGN,TP11STA PROJECT	1.000	25520.75	25520.75
0330	639-2002	LF	STEEL WIRE STRAND CABLE, 3/8"	1020.000	3.33	3403.70
0331	639-4003	EA	STRAIN POLE, TP III	6.000	5397.50	32385.05
0336	653-0110	EA	THERM PVMT MARK, ARROW, TP 1	2.000	72.81	145.62
0341	653-0120	EA	THERM PVMT MARK, ARROW, TP 2	46.000	97.43	4482.11
0346	653-0180	EA	THERM PVMT MARK, ARROW, TP 8	3.000	154.00	462.00
0351	653-0210	EA	THERM PVMT MARK, WORD, TP 1	18.000	101.47	1826.62
0356	653-0293	EA	THERM PVMT MARK, WORD, TP 12	4.000	1065.63	4262.52
0361	653-0294	EA	THERM PVMT MARK, WORD, TP 13	4.000	624.02	2496.10
0366	653-2501	LM	THERMO SOLID TRAF ST, 5 IN, WH	1.430	1240.47	1773.88
0371	653-2502	LM	THERMO SOLID TRAF ST, 5 IN YE	1.000	1354.93	1354.93
0376	653-4501	GLM	THERMO SKIP TRAF ST, 5 IN, WHI	1.258	771.00	969.92
0381	653-1804	LF	THERM SOLID TRAF STRIPE, 8",WH	3270.000	2.21	7253.15
0386	653-1704	LF	THERM SOLID TRAF STRIPE,24",WH	550.000	4.67	2570.37
0391	653-6004	SY	THERM TRAF STRIPING, WHITE	935.000	2.94	2756.24
0396	653-6006	SY	THERM TRAF STRIPING, YELLOW	60.000	3.44	206.70
0401	654-1001	EA	RAISED PVMT MARKERS TP 1	35.000	4.46	156.23
0406	654-1003	EA	RAISED PVMT MARKERS TP 3	870.000	4.58	3990.91
0411	655-7000	EA	PVMT ARROW, PREFORM PLASTIC W/RAISE	4.000	340.12	1360.49
			REFL			
0416	657-1084	LF	PRF PL SD PVMT MKG,8",WH,TP PB	4240.000	4.56	19371.75
0421	657-2085	LM	PRF PL SD PVMT MKG,8",B/W,TPPB	3.352	27799.75	93184.78
0426	657-4085	GLM	PRF PL SK PVMT MKG,8",B/W,TPPB	4.015	8200.00	32923.00
0431	657-5001	SY	PREFORMED PLASTIC PVMT MKG, WHITE, TP	1000.000	16.16	16164.79
			PB			
0436	657-5017	EA	PRF PL PVT MKG,ARW TP2,WH,TPPB	6.000	494.62	2967.75
0441	657-7085	LM	PRF PL SD PVMT MKG,8",B/Y,TPPB	3.504	27799.75	97410.35

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0631	441-0004	SY	CONC SLOPE PAV, 4 IN 3	180.000	56.26	10127.83
0636	500-0100	SY	GROOVED CONCRETE 3	4409.000	3.03	13399.92
0641	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 3	1.000	1062432.00	1062432.00
0646	500-2110	LF	CONCRETE PARAPET, SPCL DES 3	838.000	125.50	105175.64
0651	500-3002	CY	CL AA CONCRETE 3	450.000	572.89	257802.20
0656	507-9003	LF	PSC BEAMS,AASHTO TP III,BR NO- 3	2403.000	104.44	250975.50
0661	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" 3	4706.000	195.80	921437.25
0666	511-1000	LB	BAR REINF STEEL 3	152527.000	0.59	90097.70
0671	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 3	1.000	193391.00	193391.00
0676	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 3	1440.000	47.61	68567.41
0681	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 3	1.000	0.83	0.83
0686	522-1000	LS	SHORING 3	1.000	125814.00	125814.00
0691	524-0010	LF	DRILLED CAISSON - 3	487.000	682.28	332273.83
0696	540-1101	LS	REM OF EX BR, STA NO - 3	1.000	969930.00	969930.00
0701	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" 3	679.000	38.81	26352.99
0706	603-7000	SY	PLASTIC FILTER FABRIC 3	679.000	3.58	2430.83
0711	620-0200	LF	TEMP BARRIER, METHOD NO. 2 3	850.000	38.85	33026.65
0716	207-0203	CY	FOUND BK FILL MATL, TP II 9	50.000	47.08	2354.40
0721	211-0200	CY	BR EXCAV, GRADE SEPARATION 9	469.000	22.16	10395.12
0726	441-0004	SY	CONC SLOPE PAV, 4 IN 9	536.000	48.80	26159.15
0731	500-0100	SY	GROOVED CONCRETE 9	1198.000	4.57	5486.15
0736	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 9	1.000	201348.00	201348.00
0741	500-2100	LF	CONCRETE BARRIER 9	436.000	41.95	18291.87
0746	500-3002	CY	CL AA CONCRETE 9	301.000	615.09	185143.53
0751	507-8900	LF	PSC BEAMS, AASHTO TP 1 MOD, BR NO - 9	304.000		
0756	507-9003	LF	PSC BEAMS,AASHTO TP III,BR NO- 9	1460.000	108.77	158811.47
0761	511-1000	LB	BAR REINF STEEL 9	39056.000	0.66	26024.97
0766	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 9	1.000	48234.00	48234.00
0771	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 9	3700.000	44.76	165640.08
0776	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 9	1.000	0.83	0.83
0781	211-0200	CY	BR EXCAV, GRADE SEPARATION 10	513.000	21.84	11205.86
0786	500-0100	SY	GROOVED CONCRETE 10	4059.000	3.11	12661.44
0791	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 10	1.000	771732.00	771732.00
0796	500-2110	LF	CONCRETE PARAPET, SPCL DES 10	1914.000	106.52	203897.23
0801	500-3002	CY	CL AA CONCRETE 10	1050.000	568.79	597230.27
0806	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- 10	448.000	89.43	40067.82
0811	507-9031	LF	PSC BEAMS,AASHTO,BULB TEE, 63" 10	6149.000	156.10	959871.20
0816	511-1000	LB	BAR REINF STEEL 10	179624.000	0.58	104580.69
0821	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 10	1.000	148395.00	148395.00
0826	520-1125	LF	PIL-IN-PL,STEEL H,HP 12 X 53 10	452.000	41.32	18678.30
0831	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 10	1575.000	47.33	74557.57
0836	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 10	1.000	0.83	0.83
0841	524-0010	LF	DRILLED CAISSON - 10	303.000	730.62	221378.84
0846	544-1000	LS	DECK DRAIN SYSTEM, BR NO - 10	1.000	59925.00	59925.00
0851	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" 10	2964.000	37.59	111418.83
0856	603-7000	SY	PLASTIC FILTER FABRIC 10	2964.000	3.37	10015.00
0861	207-0203	CY	FOUND BK FILL MATL, TP II 11	255.000	42.96	10955.72
0866	211-0200	CY	BR EXCAV, GRADE SEPARATION 11	2525.000	16.85	42570.39
0871	500-0100	SY	GROOVED CONCRETE 11	13510.000	2.13	28867.09
0876	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 11	1.000	2462688.00	2462688.00
0881	500-2100	LF	CONCRETE BARRIER 11	4078.000	31.46	128307.42
0886	500-3002	CY	CL AA CONCRETE 11	1932.000	568.79	1098903.69
0891	507-9003	LF	PSC BEAMS,AASHTO TP III,BR NO- 11	1235.000	110.27	136183.60
0896	507-9031	LF	PSC BEAMS,AASHTO,BULB TEE, 63" 11	19339.000	156.10	3018856.58

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0901	511-1000	LB	BAR REINF STEEL 11	342747.000	0.54	188469.72
0906	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 11	1.000	543865.00	543865.00
0911	520-1125	LF	PIL-IN-PL,STEEL H,HP 12 X 53 11	380.000	41.98	15953.21
0916	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 11	11410.000	41.59	474545.09
0921	520-4125	EA	LOAD TEST, STEEL H, HP 12 X 53 11	1.000	0.82	0.83
0926	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 11	1.000	0.83	0.83
0931	544-1000	LS	DECK DRAIN SYSTEM, BR NO - 11	1.000	59925.00	59925.00
0936	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" 11	1076.000	38.42	41346.26
0941	603-7000	SY	PLASTIC FILTER FABRIC 11	1076.000	3.51	3783.13
0946	207-0203	CY	FOUND BK FILL MATL, TP II 17A	30.000	48.46	1453.83
0951	211-0200	CY	BR EXCAV, GRADE SEPARATION 17A	305.000	23.76	7249.80
0956	500-0100	SY	GROOVED CONCRETE 17A	1728.000	4.08	7051.78
0961	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 17A	1.000	293148.00	293148.00
0966	500-2100	LF	CONCRETE BARRIER 17A	734.000	39.23	28797.41
0971	500-3002	CY	CL AA CONCRETE 17A	273.000	625.80	170843.87
0976	507-9031	LF	PSC BEAMS,AASHTO,BULB TEE, 63" 17A	2660.000	156.10	415231.32
0981	511-1000	LB	BAR REINF STEEL 17A	48428.000	0.65	31662.23
0986	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 17A	1.000	67106.00	67106.00
0991	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 17A	846.000	49.30	41708.62
0996	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 17A	1.000	0.83	0.83
1001	544-1000	LS	DECK DRAIN SYSTEM, BR NO - 17A	1.000	59925.00	59925.00
1006	620-0200	LF	TEMP BARRIER, METHOD NO. 2 17A	250.000	40.85	10213.22
1011	211-0200	CY	BR EXCAV, GRADE SEPARATION 18	350.000	23.24	8135.44
1016	441-0004	SY	CONC SLOPE PAV, 4 IN 18	759.000	46.64	35400.03
1021	500-0100	SY	GROOVED CONCRETE 18	774.000	5.25	4066.70
1026	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 18	1.000	166464.00	166464.00
1031	500-2110	LF	CONCRETE PARAPET, SPCL DES 18	525.000	137.71	72300.76
1036	500-3002	CY	CL AA CONCRETE 18	314.000	610.51	191701.76
1041	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- 18	308.000	91.07	28049.86
1046	507-9030	LF	PSC BEAMS,AASHTO,BULB TEE, 54" 18	1000.000	141.39	141398.91
1051	511-1000	LB	BAR REINF STEEL 18	58450.000	0.64	37583.93
1056	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 18	1.000	33414.00	33414.00
1061	520-0573	EA	H-PILE POINTS, HP 14 X 73 18	9.000	177.44	1596.98
1066	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 18	1235.000	48.09	59399.42
1071	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 18	1.000	0.83	0.83
1076	520-5000	LF	PILOT HOLES 18	396.000	119.81	47444.83
1081	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 3	4.000	268.03	1072.13
1086	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	4.000	74.74	298.98
1091	163-0531	EA	CONSTR & REM SEDIMENT BASIN,TP 1,STA NO- PROJECT	37.000	6602.97	244309.99
1096	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	36173.000	1.58	57480.71
1101	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	18086.000	0.58	10593.15
1106	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	10500.000	2.92	30672.18
1111	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	5250.000	0.61	3244.24
1116	716-2000	SY	EROSION CONTROL MATS, SLOPES	63525.000	0.87	55733.02
1121	700-6910	AC	PERMANENT GRASSING	15.000	692.51	10387.73
1126	700-7000	TN	AGRICULTURAL LIME	30.000	41.67	1250.22
1131	700-8000	TN	FERTILIZER MIXED GRADE	6.000	499.18	2995.11
1136	700-8100	LB	FERTILIZER NITROGEN CONTENT	750.000	2.29	1721.90
1141	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53
1146	167-1500	MO	WATER QUALITY INSPECTIONS	12.000	586.95	7043.43
1151	163-0240	TN	MULCH	217.500	263.80	57377.71

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1156	163-0232	AC	TEMPORARY GRASSING	7.500	319.56	2396.75
1161	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	500.000	13.64	6823.93
1166	621-6013	LF	CONC SIDE BARRIER, TP 7-TS	11.000	238.15	2619.69
1171	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 34	616.000	35.76	22030.75
1176	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 34	2719.000	30.85	83885.26
1181	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - WALL NO. 34	6474.000	42.14	272873.86
1186	627-1100	LF	COPING A, WALL NO - WALL NO. 34	44.000	80.54	3543.88
1191	627-1160	LF	TRAFFIC BARRIER H, WALL NO - WALL NO. 34	480.000	172.89	82991.94
1196	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	92.000	36.30	3340.40
1201	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 37	68.000	42.78	2909.20
1206	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 37	12341.000	26.28	324358.38
1211	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - WALL NO. 37	5297.000	42.14	223264.26
1216	627-1100	LF	COPING A, WALL NO - WALL NO. 37	368.000	72.98	26858.80
1221	627-1160	LF	TRAFFIC BARRIER H, WALL NO - WALL NO. 37	604.000	172.89	104431.53
1226	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	30.000	40.01	1200.38
1231	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 38I	4854.000	30.23	146776.22
1236	627-1100	LF	COPING A, WALL NO - WALL NO. 38I	106.000	77.32	8196.33
1241	627-1160	LF	TRAFFIC BARRIER H, WALL NO - WALL NO. 38I	348.000	172.89	60169.16
1246	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	90.000	36.37	3274.02
1251	626-0502	LF	CAST-IN-PLACE COPING, B	369.000	76.43	28202.67
1256	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 38II	1192.000	33.89	40403.09
1261	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 38II	7901.000	27.55	217708.66
1266	627-1100	LF	COPING A, WALL NO - WALL NO. 38II	324.000	73.41	23787.52
1271	516-1100	LF	ALUM HANDRAIL, STD 3626	30.000	70.69	2120.81
1276	626-0501	LF	CAST-IN-PLACE COPING, A	81.000	76.43	6190.83
1281	626-0502	LF	CAST-IN-PLACE COPING, B	30.000	76.43	2292.90
1286	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 48	526.000	36.22	19055.11
1291	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 48	278.000	39.28	10920.65
1296	516-1100	LF	ALUM HANDRAIL, STD 3626	246.000	61.71	15182.62
1301	626-0501	LF	CAST-IN-PLACE COPING, A	26.000	76.43	1987.18
1306	626-0502	LF	CAST-IN-PLACE COPING, B	246.000	76.43	18801.78
1311	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 50	687.000	35.44	24353.04
1316	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 50	1928.000	31.99	61688.15
1321	621-6012	LF	CONC SIDE BARRIER, TP 7-RS	140.000	245.65	34391.00
1326	621-6013	LF	CONC SIDE BARRIER, TP 7-TS	11.000	238.15	2619.69
1331	621-6210	LF	CONC SIDE BARRIER, TP 6-S	65.000	568.20	36933.00
1336	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	182.000	34.22	6228.72

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1341	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 52	240.000	38.61	9267.10
1346	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 52	5415.000	28.67	155301.77
1351	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - WALL NO. 52	550.000	42.14	23182.05
1356	627-1100	LF	COPING A, WALL NO - WALL NO. 52	408.000	72.63	29636.04
1361	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	283.000	32.93	9321.69
1366	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 53	163.000	39.84	6495.04
1371	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 53	1752.000	32.32	56628.28
1376	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - WALL NO. 53	3411.000	42.14	143770.89
1381	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - WALL NO. 53	4397.000	44.43	195393.80
1386	627-1100	LF	COPING A, WALL NO - WALL NO. 53	401.000	72.69	29150.97
1391	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 55	2047.000	32.43	66399.09
1396	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 55	5907.000	28.41	167858.51
1401	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - WALL NO. 55	16641.000	42.14	701404.67
1406	627-1100	LF	COPING A, WALL NO - WALL NO. 55	59.000	79.45	4687.80
1411	627-1160	LF	TRAFFIC BARRIER H, WALL NO - WALL NO. 55	1339.000	172.89	231512.94
1416	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	58.000	37.79	2191.83
1421	550-2108	LF	SIDE DR PIPE 8",H 1-10	79.000	23.75	1876.25
1426	617-0510	LS	PERMANENTLY ANCHORED WALL NO - WALL NO. 56	1.000	152814.00	152814.00
1431	621-6013	LF	CONC SIDE BARRIER, TP 7-TS	11.000	238.15	2619.69
1436	668-7008	EA	DRAIN INLET, 8 IN	1.000	7327.71	7327.71
1441	515-1000	LF	FERROUS MET HDRAIL,SPEL DESIGN	79.000		
1446	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24"	101.000	40.44	4085.34
1456	626-0501	LF	CAST-IN-PLACE COPING, A	79.000		
1461	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 57	85.000	42.01	3571.12
1466	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - WALL NO. 57	955.000	34.46	32917.24
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ITEM TOTAL						33479118.64
INFLATED ITEM TOTAL						33479118.66



PROJ. NO.

PHASE 1 - PROJECT NO. NHIMO-0016-01(092)

CALL NO.

P.I. NO.

311000

DATE

11/10/2011

## INDEX (TYPE)

## DATE INDEX

REG. UNLEADED

Nov-11 \$ 3.353

DIESEL

Nov-11 \$ 3.847

LIQUID AC

Nov-11 \$ 558.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

362571.66

\$

362,571.66

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 892.80

Monthly Asphalt Cement Price month project let (APL)

\$ 558.00

Total Monthly Tonnage of asphalt cement (TMT)

1082.95

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 PEM	1896	5.0%	94.8
12.5 mm SP	492	5.0%	24.6
9.5 mm SP	0	5.0%	0
25 mm SP	4054	5.0%	202.7
19 mm SP	15217	5.0%	760.85
	<b>21659</b>		<b>1082.95</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 14,883.30

\$

14,883.30

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 892.80

Monthly Asphalt Cement Price month project let (APL)

\$ 558.00

Total Monthly Tonnage of asphalt cement (TMT)

44.45429454

Bitum Tack

Gals	gals/ton	tons
10350	232.8234	44.4542945

PROJ. NO.

PHASE 1 - PROJECT NO. NHIMO-0016-01(092)

CALL NO.

P.I. NO.

311000

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**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	892.80			
Monthly Asphalt Cement Price month project let (APL)				\$	558.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>377,454.96</b>
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# Preliminary Right of Way Cost Estimate

**Date:** February 20, 2009  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 1 **No. Parcels:** 10  
**Land:**

Commercial R/W:	2,283 s.f @ \$ 2.50 /s.f. =	\$ 5,708	
Industrial R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential R/W:	21,017 s.f @ \$ 1.05 /s.f. =	\$ 22,068	
Agricultural R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Commercial Esmt:	792 s.f @ \$ 1.25 /s.f. =	\$ 990	
Industrial Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential Esmt:	8,733 s.f @ \$ 0.55 /s.f. =	\$ 4,803	
Agricultural Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
<b>TOTAL</b>			\$ 33,569

**Improvements:** none \$ 0

**Relocation:**

Commercial ( 0 ) @ \$25,000 /parcel =	\$ 0	
Residential ( 0 ) @ \$40,000 /parcel =	\$ 0	
<b>TOTAL</b>		\$ 0

**Damages:**

Proximity-	\$ 0	
Consequential-	\$ 0	
Cost To Cure- (Parcel 147)	\$ 25,000	
<b>TOTAL</b>		\$ 25,000

**SUB-TOTAL:** \$ 58,569

Net Cost		\$ 58,569
Scheduling Contingency 55 %		32,213
Adm/Court Cost 60 %		54,469
<b>TOTAL</b>		\$ 145,251

**Total Cost \$ 145,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 272,283 sf on 5 parcels owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 2/20/09.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P1B SPEC YEAR: 01  
DESCRIPTION: I-16 / I-75 PHASE 1-B MITIGATION COST ESTIMATE

ITEMS FOR JOB 11516 P1B

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	301000.00	301000.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	63835.52	63835.52
0015	201-1500		LS	CLEARING & GRUBBING - PROJECT	1.000	100000.00	100000.00
0020	207-0203		CY	FOUND BK FILL MATL, TP 11	2600.000	51.02	132652.00
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	232000.00	232000.00
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	4700.000	18.81	88410.57
0035	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	1200.000	68.01	81618.80
0040	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	590.000	78.65	46404.93
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2, INC BM&HL	790.000	71.15	56214.88
0050	413-1000		GL	BITUM TACK COAT	500.000	2.90	1453.12
0055	441-0016		SY	DRIVEWAY CONCRETE, 6 IN TK	100.000	35.88	3588.52
0060	441-0104		SY	CONC SIDEWALK, 4 IN	320.000	32.55	10416.47
0064	441-0106		SY	CONC SIDEWALK, 6 IN	2600.000	30.36	78950.74
0065	441-4020		SY	CONC VALLEY GUTTER, 6 IN	90.000	36.42	3278.64
0070	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	3500.000	13.66	47833.94
0075	500-3101		CY	CLASS A CONCRETE	5500.000	504.02	2772158.57
0080	511-1000		LB	BAR REINF STEEL	651000.000	0.55	361500.30
0085	621-4086		LF	CONCRETE SIDE BARRIER, TP 7WS	1720.000	62.80	108016.00
0090	621-6210		LF	CONC SIDE BARRIER, TP 6-S	10.000	325.00	3250.00
0095	624-0410		SF	SOUND BARRIER	13400.000	24.35	326290.00
0100	634-1200		EA	RIGHT OF WAY MARKERS	79.000	101.30	8003.29
0105	550-1180		LF	STM DR PIPE 18", H 1-10	720.000	30.79	22172.24
0110	550-1181		LF	STM DR PIPE 18", H 10-15	140.000	27.22	3811.12
0115	550-1240		LF	STM DR PIPE 24", H 1-10	260.000	41.99	10918.32
0120	550-1300		LF	STM DR PIPE 30", H 1-10	650.000	43.10	28019.04
0125	550-1360		LF	STM DR PIPE 36", H 1-10	40.000	71.23	2849.31
0130	550-1420		LF	STM DR PIPE 42", H 1-10	150.000	69.97	10496.01
0135	550-1480		LF	STM DR PIPE 48", H 1-10	50.000	77.93	3896.63
0140	550-1481		LF	STM DR PIPE 48", H 10-15	480.000	79.00	37920.47
0145	550-1540		LF	STM DR PIPE 54", H 1-10	490.000	104.57	51242.45
0150	550-1541		LF	STM DR PIPE 54", H 10-15	190.000	130.70	24834.26
0155	550-3418		EA	SAFETY END SECTION 18", SD, 4: 1	6.000	347.85	2087.12
0160	611-3000		EA	RECONSTR CATCH BASIN, GROUP 1	1.000	1522.82	1522.83
0165	611-3001		LF	RECONT CH BASIN, GP 1, ADDL DEP	5.000	200.05	1000.25
0170	611-8000		EA	ADJUST CATCH BASIN TO GRADE	5.000	1354.67	6773.39
0175	611-8050		EA	ADJUST MANHOLE TO GRADE	2.000	890.33	1780.67
0180	668-1100		EA	CATCH BASIN, GP 1	14.000	2023.71	28331.94
0185	668-1110		LF	CATCH BASIN, GP 1, ADDL DEPTH	6.000	169.06	1014.41
0190	668-2100		EA	DROP INLET, GP 1	17.000	1851.03	31467.58
0195	668-2110		LF	DROP INLET, GP 1, ADDL DEPTH	4.000	162.84	651.37
0200	668-2200		EA	DROP INLET, GP 2	2.000	2589.47	5178.94

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0205	668-2210	LF	DROP INLET, GP 2, ADDL DEPTH	6.000	169.06	1014.38
0210	668-4300	EA	STORM SEW MANHOLE, TP 1	3.000	1753.33	5259.99
0215	668-4311	LF	ST SEW MANHOLE, TP 1, A DEP, CL 1	5.000	212.54	1062.74
0220	668-4400	EA	STORM SEW MANHOLE, TP 2	9.000	3090.21	27811.89
0225	668-4411	LF	ST SEW MANHOLE, TP 2, A DEP, CL 1	4.000	280.58	1122.35
0230	668-4412	LF	ST SEW MANHOLE, TP 2, A DEP, CL 2	65.000	156.98	10204.33
0235	636-1033	SF	HWY SIGNS, TP1MAT, REFL SH TP 9	100.000	19.13	1913.70
0240	636-2080	LF	GALV STEEL POSTS, TP 8	130.000	8.76	1139.32
0245	652-5451	LF	SOLID TRAF STRIPE, 5 IN, WHITE	3090.000	0.23	718.64
0250	652-5452	LF	SOLID TRAF STRIPE, 5 IN, YELLO	3090.000	0.14	455.50
0255	652-5801	LF	SOLID TRAF STRIPE, 8 IN, WHITE	180.000	1.00	180.38
0260	163-0232	AC	TEMPORARY GRASSING	4.000	374.82	1499.32
0265	163-0240	TN	MULCH	40.000	222.65	8906.20
0270	163-0300	EA	CONSTRUCTION EXIT	5.000	1108.42	5542.10
0275	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	6.000	325.87	1955.26
0280	163-0527	EA	CNST/REM RIP RAP CKDM, STN P RI PRAP/SN BG	21.000	225.92	4744.38
0285	163-0528	LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	140.000	3.90	546.43
0290	163-0529	LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	160.000	3.99	639.00
0295	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	53.000	131.53	6971.36
0300	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	1400.000	0.59	833.31
0305	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	3650.000	0.63	2335.34
0310	165-0041	LF	MAINT OF CHECK DAMS - ALL TYPES	510.000	11.23	5729.10
0315	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	6.000	71.79	430.75
0320	165-0101	EA	MAINT OF CONST EXIT	2.000	391.18	782.37
0325	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	53.000	49.23	2609.35
0330	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	1.000	241.52	241.53
0335	167-1500	MO	WATER QUALITY INSPECTIONS	18.000	335.77	6043.86
0340	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	2800.000	1.94	5453.17
0345	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	7300.000	2.94	21519.23
0350	700-6910	AC	PERMANENT GRASSING	7.000	646.01	4522.12
0355	700-7000	TN	AGRICULTURAL LIME	21.000	43.22	907.66
0360	700-8000	TN	FERTILIZER MIXED GRADE	7.000	434.92	3044.51
0365	700-8100	LB	FERTILIZER NITROGEN CONTENT	350.000	2.19	766.83
0366	702-0030	EA	ACER RUBRUM - IN	16.000	167.56	2681.08
0367	702-0225	EA	CRYPTOMERIA JAPONICA - IN	20.000	250.00	5000.00
0368	702-0825	EA	PRUNUS CAROLINIANA - IN	35.000	150.00	5250.00
0369	702-0838	EA	PRUNUS X YEDOENSIS - IN	45.000	150.00	6750.00
0370	716-2000	SY	EROSION CONTROL MATS, SLOPES	2800.000	1.10	3094.22
0375	540-1101	LS	REM OF EX BR, STA NO - 10+73, FIRST AVE.	1.000	13080.00	13080.00
0380	540-1101	LS	REM OF EX BR, STA NO - 10+74, MIDDLE ST.	1.000	19440.00	19440.00
0385	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 3	17011.000	27.12	461426.10
0390	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 3	11453.000	34.21	391860.73
0400	627-1120	LF	COPING B, WALL NO - 3	730.000	206.72	150909.00
0405	627-1140	LF	TRAFFIC BARRIER V, WALL NO - 3	326.000	208.56	67991.41
0410	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 3	1400.000	172.89	242059.83

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0415	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 9	2762.000	30.18	83376.96
0420	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 9	1094.000	42.32	46300.02
0425	627-1140	LF	TRAFFIC BARRIER V, WALL NO - 9	285.000	208.56	59440.34
0430	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 59	1581.000	31.19	49318.44
0435	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 59	960.000	42.82	41112.45
0440	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 59	78.000	42.14	3287.64
0445	627-1100	LF	COPING A, WALL NO - 59	163.000	75.79	12354.69
0450	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS FIRST AVE. (WEST)	1.000	149500.00	149500.00
0455	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS THIRD AVE.	1.000	713000.00	713000.00
0460	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS FRONTAGE RD.	1.000	230000.00	230000.00
0465	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS PURSLEY ST.	1.000	494500.00	494500.00
0470	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS WALNUT ST. (WEST)	1.000	713000.00	713000.00
0475	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS FIRST AVE. (EAST)	1.000	161000.00	161000.00
0480	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS FIFTH AVE.	1.000	92000.00	92000.00
0485	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS MONROE ST.	1.000	264500.00	264500.00
0490	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS STEWARTS LANE	1.000	115000.00	115000.00
0500	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS WALNUT ST. (EAST)	1.000	299000.00	299000.00
0595	231-1200	EA	MISC CONSTR, RDS, STS AND DRIVEWAYS MADISON ST.	1.000	149500.00	149500.00

ITEM TOTAL	10285483.93
INFLATED ITEM TOTAL	10285483.95

TOTALS FOR JOB 11516 P1B

ESTIMATED COST:	10285483.95
CONTINGENCY PERCENT ( 0.0 ):	0.00
ESTIMATED TOTAL:	10285483.95



PROJ. NO.

PHASE 1B - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

DATE

11/10/2011

## INDEX (TYPE)

## DATE INDEX

REG. UNLEADED

Oct-11 \$ 3.258

DIESEL

Oct-11 \$ 3.769

LIQUID AC

Sep-11 \$ 563.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

43576.2

\$

43,576.20

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

900.80

Monthly Asphalt Cement Price month project let (APL)

\$

563.00

Total Monthly Tonnage of asphalt cement (TMT)

129

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	590	5.0%	29.5
9.5 mm SP	0	5.0%	0
25 mm SP	1200	5.0%	60
19 mm SP	790	5.0%	39.5
	<b>2580</b>		<b>129</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$

725.44

\$

725.44

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

900.80

Monthly Asphalt Cement Price month project let (APL)

\$

563.00

Total Monthly Tonnage of asphalt cement (TMT)

2.147550461

## Bitum Tack

Gals	gals/ton	tons
500	232.8234	2.14755046

PROJ. NO.

PHASE 1B - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

DATE

11/10/2011

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	900.80			
Monthly Asphalt Cement Price month project let (APL)				\$	563.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>44,301.64</b>
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# Preliminary Right of Way Cost Estimate

**Date:** December 30, 2008  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 1B **No. Parcels:** 69  
**Land:**

Commercial R/W:	11,474	s.f @ \$	2.50 /s.f. =	\$	28,685
Industrial R/W:	0	s.f @ \$	0.00 /s.f. =	\$	0
Residential R/W:	186,005	s.f @ \$	1.05 /s.f. =	\$	195,305
Agricultural R/W:	0	s.f @ \$	0.00 /s.f. =	\$	0
Commercial Esmt:	0	s.f @ \$	1.25 /s.f. =	\$	0
Industrial Esmt:	0	s.f @ \$	0.00 /s.f. =	\$	0
Residential Esmt:	22,637	s.f @ \$	0.55 /s.f. =	\$	12,450
Agricultural Esmt:	0	s.f @ \$	0.00 /s.f. =	\$	0
<b>TOTAL</b>				\$	<u>236,440</u>

**Improvements:** 22 houses, curbing, paving, signs, fencing, site improvements, etc. \$ 1,657,000

**Relocation:**  
 Commercial ( 0 ) @ \$25,000 /parcel = \$ 0  
 Residential ( 22 ) @ \$40,000 /parcel = \$ 880,000  
**TOTAL** \$ 880,000

**Damages:**  
 Proximity- \$ 0  
 Consequential- \$ 0  
 Cost To Cure- \$ 0  
**TOTAL** \$ 0

**SUB-TOTAL:** \$ **2,773,440**

Net Cost		\$	2,773,440
Scheduling Contingency	55 %		1,525,392
Adm/Court Cost	60 %		<u>2,579,299</u>
<b>TOTAL</b>		\$	<u>6,878,131</u>

**Total Cost** **\$ 6,878,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 115,584 sf on 17 parcels owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 12/30/08.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P2  
DESCRIPTION: I-16 / I-75 PHASE 2

SPEC YEAR: 01

ITEMS FOR JOB 11516 P2

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	2113000.00	2113000.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	84726.46	84726.46
0020	207-0203		CY	FOUND BK FILL MATL, TP II	12.000	51.02	612.30
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	512000.00	512000.00
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	57500.000	14.99	862215.38
0035	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	6000.000	60.80	364827.24
0040	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	1100.000	75.15	82666.42
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2 , INC BM&HL	13200.000	58.39	770776.64
0049	402-3600		TN	RECY AC 12.5, SMA, GP2 ON, INCLP-, BM&HL	590.000	89.89	53039.17
0050	413-1000		GL	BITUM TACK COAT	8900.000	2.44	21788.62
0052	433-1100		SY	REF CONC APPR SL/INCL CURB	687.000	134.05	92093.52
0053	433-1300		SY	REF CONC APPR SL/INCL BARRIER	174.000	134.75	23446.91
0054	439-0056		SY	PLN PC CONC PVMT CL HES 12"THK	64600.000	63.86	4125777.19
0055	441-0016		SY	DRIVEWAY CONCRETE, 6 IN TK	110.000	35.65	3922.18
0060	441-0104		SY	CONC SIDEWALK, 4 IN	1800.000	20.72	37312.97
0063	441-0748		SY	CONC MEDIAN, 6 IN	120.000	55.74	6688.83
0064	441-3999		LF	CONCRETE V GUTTER	880.000	16.86	14839.48
0065	441-4020		SY	CONC VALLEY GUTTER, 6 IN	22.000	37.55	826.14
0069	441-4050		SY	CONC VALLEY GUTTER, W/CURB, 8"	32.000	51.55	1649.66
0070	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	3800.000	13.24	50340.99
0074	441-6740		LF	CONC CURB & GUTTER/ 8"X30" TP7	170.000	18.11	3080.38
0075	500-3800		CY	CL A CONC, INCL REINF STEEL	6.000	679.71	4078.32
0078	522-1000		LS	SHORING	1.000	465000.00	465000.00
0079	550-1150		LF	STM DR PIPE 15", H 1-10	11.000	73.79	811.71
0080	550-1180		LF	STM DR PIPE 18", H 1-10	4400.000	27.04	118977.45
0081	550-1181		LF	STM DR PIPE 18", H 10-15	150.000	27.22	4083.34
0082	550-1182		LF	STM DR PIPE 18", H 15-20	26.000	36.57	950.87
0083	550-1183		LF	STM DR PIPE 18", H 20-25	73.000	34.74	2536.12
0084	550-1184		LF	STM DR PIPE 18", H 25-30	32.000	51.44	1646.08
0085	550-1240		LF	STM DR PIPE 24", H 1-10	62.000	45.96	2849.62
0086	550-1241		LF	STM DR PIPE 24", H 10-15	24.000	43.63	1047.17
0087	550-1245		LF	STM DR PIPE 24", H 30-35	29.000	80.89	2345.81
0088	550-1300		LF	STM DR PIPE 30", H 1-10	870.000	42.38	36877.30
0089	550-1302		LF	STM DR PIPE 30", H 15-20	96.000	82.11	7882.66
0090	550-1303		LF	STM DR PIPE 30", H 20-25	20.000	53.78	1075.76
0091	550-1540		LF	STM DR PIPE 54", H 1-10	31.000	122.49	3797.34
0092	550-1542		LF	STM DR PIPE 54", H 15-20	13.000	121.50	1579.50
0093	550-2180		LF	SIDE DR PIPE 18", H 1-10	40.000	28.33	1133.34
0094	550-3418		EA	SAFETY END SECTION 18", SD, 4: 1	2.000	347.85	695.71
0095	550-4230		EA	FLARED END SECT 30 IN, ST DR	3.000	667.37	2002.14
0096	576-1018		LF	SLOPE DRAIN PIPE, 18 IN	150.000	29.77	4465.53
0097	611-3000		EA	RECONSTR CATCH BASIN, GROUP 1	4.000	1912.05	7648.21
0098	611-3001		LF	RECONSTR CH BASIN, GP 1, ADDL DEP	5.000	200.05	1000.25

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0099	611-8050	EA	ADJUST MANHOLE TO GRADE	11.000	1006.74	11074.25
0100	620-0100	LF	TEMP BARRIER, METHOD NO. 1	5400.000	24.50	132308.32
0105	621-6002	LF	CONC BARRIER, TP S-2	3100.000	79.72	247136.87
0106	621-6003	LF	CONC BARRIER, TP S-3	380.000	195.06	74122.80
0107	621-6004	LF	CONC BARRIER, TP S-3A	54.000	300.00	16200.00
0108	621-6012	LF	CONC SIDE BARRIER, TP 7-RS	1100.000	105.00	115500.00
0109	621-6200	LF	CONC SIDE BARRIER, TP 2-S	97.000	174.80	16955.60
0110	621-6201	LF	CONC SIDE BARRIER, TP 2-SA	6.000	495.50	2973.00
0113	621-6202	LF	CONC SIDE BARRIER, TP 2-SB	140.000	537.26	75216.40
0114	621-6203	LF	CONC SIDE BARRIER, TP 2-SC	130.000	714.80	92924.00
0115	621-6210	LF	CONC SIDE BARRIER, TP 6-S	750.000	325.00	243750.00
0118	621-6211	LF	CONC SIDE BARRIER, TP 6-SA	43.000	265.00	11395.00
0119	621-6212	LF	CONC SIDE BARRIER, TP 6-SB	99.000	420.00	41580.00
0120	621-6213	LF	CONC SIDE BARRIER, TP 6-SC	96.000	762.75	73224.00
0123	624-0410	SF	SOUND BARRIER	50330.000	24.00	1207920.00
0129	634-1200	EA	RIGHT OF WAY MARKERS	25.000	108.68	2717.01
0134	641-1100	LF	GUARDRAIL, TP T	260.000	47.58	12371.87
0139	641-1200	LF	GUARDRAIL, TP W	2700.000	15.44	41712.62
0144	641-5000	EA	GUARDRAIL ANCHORAGE, SPCL DES	7.000	1988.42	13918.98
0149	641-5001	EA	GUARDRAIL ANCHORAGE, TP 1	8.000	619.27	4954.17
0154	641-5012	EA	GUARDRAIL ANCHORAGE, TP 12	3.000	1735.78	5207.36
0159	668-1100	EA	CATCH BASIN, GP 1	16.000	2014.78	32236.53
0164	668-1110	LF	CATCH BASIN, GP 1, ADDL DEPTH	15.000	159.68	2395.32
0169	668-2100	EA	DROP INLET, GP 1	58.000	1851.03	107359.99
0174	668-2110	LF	DROP INLET, GP 1, ADDL DEPTH	190.000	126.99	24129.06
0179	668-2200	EA	DROP INLET, GP 2	1.000	2789.86	2789.86
0184	668-2210	LF	DROP INLET, GP 2, ADDL DEPTH	6.000	169.06	1014.38
0189	668-4300	EA	STORM SEW MANHOLE, TP 1	2.000	1753.33	3506.66
0194	668-4311	LF	ST SEW MANHOLE, TP 1, A DEP, CL 1	2.000	180.06	360.13
0199	500-3104	CY	CL A CONC, SIGNS	2.000	623.60	1247.20
0204	610-9310	LS	REM STR SUPPORT, TP - 1, STA 1037+85	1.000	3700.00	3700.00
			I-75 NB			
0209	636-1020	SF	HWY SGN, TP1MAT, REFL SH TP3	8.000	16.16	129.29
0214	636-1033	SF	HWY SIGNS, TP1MAT, REFL SH TP 9	57.000	21.47	1224.14
0219	636-1041	SF	HWY SIGNS, TP 2MAT, REFL SH TP 9	40.000	36.93	1477.55
0224	636-1077	SF	HWY SIGN, ALUM EXT PL, REFL SHT, TP 9	695.000	24.95	17344.04
0229	636-2090	LF	GALV STEEL POSTS, TP 9	156.000	6.69	1044.35
0234	636-3000	LB	GALV STEEL STR SHAPE POST	460.000	6.21	2860.41
0239	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 1002+41	1.000	67300.00	67300.00
			I-75 NB			
0244	639-2002	LF	STEEL WIRE STRAND CABLE, 3/8"	50.000	3.47	173.99
0249	639-4001	EA	STRAIN POLE, TP I	2.000	6500.00	13000.00
0254	652-5451	LF	SOLID TRAF STRIPE, 5 IN, WHITE	3400.000	0.15	526.69
0259	652-5452	LF	SOLID TRAF STRIPE, 5 IN, YELLO	4800.000	0.13	645.55
0264	652-6501	GLF	SKIP TRAF STRIPE, 5 IN, WHITE	1100.000	0.08	97.68
0269	654-1001	EA	RAISED PVMT MARKERS TP 1	60.000	4.14	248.87
0274	654-1003	EA	RAISED PVMT MARKERS TP 3	380.000	4.78	1816.51
0279	657-1085	LF	PRF PL SD PVT MKG, 8", B/W, TP PB	12900.000	4.07	52558.73
0284	657-1104	LF	PRF PL SD PVMT MKG, 10", WH, TPPB	2600.000	7.11	18507.27
0289	657-3085	GLF	PRF PL SK PVMT MKG, 8", B/W, TPPB	13500.000	3.22	43508.07
0294	657-6085	LF	PRF PL SD PVMT MKG, 8", B/Y, TPPB	10500.000	4.23	44475.48
0299	163-0232	AC	TEMPORARY GRASSING	4.000	319.88	1279.53
0304	163-0240	TN	MULCH	330.000	263.80	87055.83
0309	163-0300	EA	CONSTRUCTION EXIT	10.000	1094.18	10941.82

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=====	=====	=====	=====	=====	=====	=====
0314	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	3.000	268.03	804.10
0319	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	320.000	13.74	4399.52
0324	163-0527	EA	CNST/REM RIP RAP CKDM, STN P RI PRAP/SN BG	53.000	218.94	11603.97
0329	163-0528	LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	570.000	3.57	2036.22
0334	163-0529	LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	190.000	3.93	748.36
0339	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	92.000	84.30	7755.82
0344	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	5150.000	0.71	3660.62
0349	165-0041	LF	MAINT OF CHECK DAMS - ALL TYPES	910.000	0.00	0.00
0354	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	3.000	76.91	230.75
0359	165-0101	EA	MAINT OF CONST EXIT	3.000	387.77	1163.32
0364	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	92.000	48.42	4455.36
0369	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53
0374	167-1500	MO	WATER QUALITY INSPECTIONS	36.000	620.65	22343.53
0379	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	10300.000	1.75	18086.39
0384	700-6910	AC	PERMANENT GRASSING	7.000	707.03	4949.27
0389	700-7000	TN	AGRICULTURAL LIME	21.000	42.06	883.44
0394	700-8000	TN	FERTILIZER MIXED GRADE	7.000	497.06	3479.45
0399	700-8100	LB	FERTILIZER NITROGEN CONTENT	350.000	2.41	844.38
0404	716-2000	SY	EROSION CONTROL MATS, SLOPES	12900.000	0.98	12733.33
0409	515-2020	LF	GALV STEEL PIPE HDRAIL, 2", ROUD WALL NO. 5	225.000	31.44	7076.19
0414	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 5	912.000	34.64	31592.76
0419	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 5	28.000	50.09	1402.75
0424	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 6	3543.000	31.02	109911.69
0429	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 6	3230.000	30.29	97848.65
0434	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 6	392.000	42.14	16522.48
0439	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 6	348.000	172.89	60169.16
0444	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 7	10021.000	28.50	285674.06
0449	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 7	5388.000	28.69	154609.25
0454	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 7	369.000	42.14	15553.05
0459	627-1100	LF	COPING A, WALL NO - 7	34.000	81.51	2771.40
0464	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 7	751.000	172.89	129847.81
0469	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 8	12591.000	27.98	352337.23
0474	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 8	7406.000	27.74	205472.73
0479	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 8	1294.000	42.14	54541.05
0484	627-1100	LF	COPING A, WALL NO - 8	29.000	82.11	2381.35



0489 627-1160 LF TRAFFIC BARRIER H, WALL NO - 8 phase 2 cost estimate.txt 1481.000 172.89 256064.72

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0494	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 9	7590.000	29.15	221315.98
0499	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 9	3865.000	29.72	114879.74
0504	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 9	223.000	42.14	9399.27
0509	627-1100	LF	COPING A, WALL NO - 9	65.000	79.09	5141.37
0514	627-1120	LF	COPING B, WALL NO - 9	330.000	206.72	68219.14
0519	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 12	10721.000	28.35	303956.11
0524	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 12	9378.000	27.05	253757.15
0529	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 12	2882.000	42.14	121473.97
0534	627-1100	LF	COPING A, WALL NO - 12	83.000	78.20	6491.11
0539	627-1120	LF	COPING B, WALL NO - 12	890.000	206.72	183984.95
0544	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 27	85.000	29.25	2486.68
0549	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 27	892.000	45.66	40736.55
0554	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 27	2805.000	3.50	9828.61
0559	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 27	1.000	628946.00	628946.00
0564	500-2110	LF	CONCRETE PARAPET, SPCL DES BRIDGE NO. 27	890.000	124.01	110375.11
0569	500-3002	CY	CL AA CONCRETE BRIDGE NO. 27	526.000	557.30	293144.14
0574	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 27	1441.000	156.10	224942.98
0579	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 27	4342.000	195.80	850165.86
0584	511-1000	LB	BAR REINF STEEL BRIDGE NO. 27	77369.000	0.62	48530.48
0589	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 27	1.000	167719.00	167719.00
0594	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 27	2820.000	45.56	128506.05
0599	522-1000	LS	SHORING BRIDGE NO. 27	1.000	125814.00	125814.00
0604	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 27	1.000	783990.00	783990.00
0609	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 28	42.000	32.80	1377.86
0614	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 28	892.000	45.66	40736.55
0619	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 28	1579.000	4.19	6629.16
0624	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 28	1.000	312530.00	312530.00
0629	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 28	498.000	41.24	20538.52
0634	500-3002	CY	CL AA CONCRETE BRIDGE NO. 28	182.000	568.79	103519.91
0639	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 28	2490.000	156.10	388693.98
0644	511-1000	LB	BAR REINF STEEL BRIDGE NO. 28	26773.000	0.68	18446.06
0649	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 28	1.000	83341.00	83341.00
0654	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 28	1740.000	47.03	81833.66
0659	522-1000	LS	SHORING BRIDGE NO. 28	1.000	125814.00	125814.00
0664	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 28	1.000	435900.00	435900.00
0669	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 29	133.000	27.20	3617.88
0674	441-0004	SY	CONC SLOPE PAV, 4 IN V	0.000	0.00	0.00

0679	500-0100	SY	phase 2 cost estimate.txt GROOVED CONCRETE BRIDGE NO. 29	1141.000	4.65	5305.88
0684	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 29	1.000	147558.00	147558.00

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0689	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 29	736.000	39.21	28865.77
0694	500-3002	CY	CL AA CONCRETE BRIDGE NO. 29	548.000	553.28	303201.17
0699	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- 29	1840.000	91.07	167570.60
0704	511-1000	LB	BAR REINF STEEL BRIDGE NO. 29	80571.000	0.62	50357.68
0709	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 29	1.000	39349.00	39349.00
0714	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 29	3420.000	44.99	153894.80
0719	522-1000	LS	SHORING BRIDGE NO. 29	1.000	125814.00	125814.00
0724	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 30	42.000	32.80	1377.86
0729	500-3002	CY	CL AA CONCRETE BRIDGE NO. 30	194.000	568.79	110345.40
0734	501-3000	LS	STR STEEL, BR NO - 30	1.000	495827.00	495827.00
0739	511-1000	LB	BAR REINF STEEL BRIDGE NO. 30	28491.000	0.68	19522.03
0744	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 30	1440.000	47.61	68567.41
0749	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 30	1.000	144000.00	144000.00

ITEM TOTAL	22958983.05
INFLATED ITEM TOTAL	22958983.05

TOTALS FOR JOB 11516 P2

ESTIMATED COST:	22958983.01
CONTINGENCY PERCENT ( 0.0 ):	0.00
ESTIMATED TOTAL:	22958983.01

NOTE: The item totals include all alternate items. The estimated totals include only the low cost alternate items.

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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P2 MTG                      SPEC YEAR: 01  
DESCRIPTION: I-16/I-75 PHASE 2 MITIGATION COST ESTIMATE

ITEMS FOR JOB 11516 P2 MTG

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0009	624-0400		SF	SOUND BARRIER, TYPE- ADD' L COST FOR CONC	50330.000	21.00	1056930.00
0014	624-0410		SF	VISUAL BARRIER	27000.000	45.00	1215000.00
ITEM TOTAL							2271930.00
INFLATED ITEM TOTAL							2271930.00

TOTALS FOR JOB 11516 P2 MTG

ESTIMATED COST:	2271930.00
CONTINGENCY PERCENT ( 0.0 ):	0.00
ESTIMATED TOTAL:	2271930.00

PROJ. NO.

PHASE 2 - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

DATE

11/10/2011

## INDEX (TYPE)

## DATE INDEX

REG. UNLEADED

Nov-11 \$ 3.353

DIESEL

Nov-11 \$ 3.847

LIQUID AC

Nov-11 \$ 558.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

349698.6 \$ 349,698.60

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 892.80

Monthly Asphalt Cement Price month project let (APL)

\$ 558.00

Total Monthly Tonnage of asphalt cement (TMT)

1044.5

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 SMA	590	5.0%	29.5
12.5 mm SP	1100	5.0%	55
9.5 mm SP	0	5.0%	0
25 mm SP	6000	5.0%	300
19 mm SP	13200	5.0%	660
	<b>20890</b>		<b>1044.5</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 12,798.20 \$ 12,798.20

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 892.80

Monthly Asphalt Cement Price month project let (APL)

\$ 558.00

Total Monthly Tonnage of asphalt cement (TMT)

38.22639821

Bitum Tack

Gals	gals/ton	tons
8900	232.8234	38.2263982

PROJ. NO.

PHASE 2 - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

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**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	892.80			
Monthly Asphalt Cement Price month project let (APL)				\$	558.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>362,496.80</b>
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# Preliminary Right of Way Cost Estimate

**Date:** December 30, 2008  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 2 **No. Parcels:** 25  
**Land:**

Commercial R/W:	8,979 s.f @ \$ 2.50 /s.f. =	\$ 22,448	
Industrial R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential R/W:	33,740 s.f @ \$ 1.05 /s.f. =	\$ 35,427	
Agricultural R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Commercial Esmt:	730 s.f @ \$ 1.25 /s.f. =	\$ 913	
Industrial Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential Esmt:	26,217 s.f @ \$ 0.55 /s.f. =	\$ 14,419	
Agricultural Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
<b>TOTAL</b>			<b>\$ 73,207</b>

**Improvements:** 9 houses, curbing, paving, signs, fencing, site improvements, etc. **\$ 677,863**

**Relocation:**  
 Commercial ( 0 ) @ \$25,000 /parcel = \$ 0  
 Residential ( 9 ) @ \$40,000 /parcel = \$ 360,000  
**TOTAL** **\$ 360,000**

**Damages:**  
 Proximity- \$ 0  
 Consequential- \$ 0  
 Cost To Cure- \$ 0  
**TOTAL** **\$ 0**

**SUB-TOTAL:** **\$ 1,111,070**

<b>Net Cost</b>		<b>\$ 1,111,070</b>
<b>Scheduling Contingency</b>	55 %	611,089
<b>Adm/Court Cost</b>	60 %	1,033,295
<b>TOTAL</b>		<b>\$ 2,755,454</b>

**Total Cost** **\$ 2,755,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

*NOTE: This estimate assumes a total land donation of 2,964 sf on 3 parcels owned by the city, county, and/or state.*

*NOTE: This update is based on estimate by consultant dated 12/30/08.*

*NOTE: Accuracy of estimate is the sole responsibility of the Preparer.*

*NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.*



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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P3 SPEC YEAR: 01  
DESCRIPTION: I-16 / I-75 PHASE 3

ITEMS FOR JOB 11516 P3

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	3902000.00	3902000.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	84726.46	84726.46
0020	207-0203		CY	FOUND BK FILL MATL, TP II	90.000	45.55	4100.06
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	2873000.00	2873000.00
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	99100.000	14.27	1414554.39
0035	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	10300.000	58.67	604313.15
0040	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	2600.000	70.57	183485.72
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2, INC BM&HL	24300.000	56.11	1363612.00
0050	413-1000		GL	BITUM TACK COAT	2200.000	2.68	5906.82
0057	433-1200		SY	REF CONC APPR SL/I SLOPED EDGE	750.000	142.54	106906.76
0058	433-1300		SY	REF CONC APPR SL/INCL BARRIER	1309.000	134.75	176390.83
0059	439-0056		SY	PLN PC CONC PVMT CL HES 12" THK	115700.000	61.16	7076982.56
0060	441-0204		SY	PLAIN CONC DITCH PAVING, 4 IN	1100.000	29.28	32209.96
0064	441-3999		LF	CONCRETE V GUTTER	1200.000	16.32	19589.23
0073	500-3800		CY	CL A CONC, INCL REINF STEEL	5.000	687.68	3438.43
0074	620-0100		LF	TEMP BARRIER, METHOD NO. 1	12000.000	21.81	261747.24
0075	621-4086		LF	CONCRETE SIDE BARRIER, TP 7WS	170.000	62.80	10676.00
0080	621-6001		LF	CONC BARRIER, TP S-1	600.000	119.39	71636.47
0081	621-6002		LF	CONC BARRIER, TP S-2	1500.000	79.72	119582.36
0082	621-6003		LF	CONC BARRIER, TP S-3	11.000	195.06	2145.66
0083	621-6008		LF	CONC SIDE BARRIER, TP 7-CS	60.000	165.60	9936.00
0084	621-6012		LF	CONC SIDE BARRIER, TP 7-RS	750.000	105.00	78750.00
0085	621-6200		LF	CONC SIDE BARRIER, TP 2-S	480.000	174.80	83904.00
0086	621-6201		LF	CONC SIDE BARRIER, TP 2-SA	50.000	495.50	24775.00
0087	621-6210		LF	CONC SIDE BARRIER, TP 6-S	3200.000	325.00	1040000.00
0088	621-6213		LF	CONC SIDE BARRIER, TP 6-SC	50.000	762.75	38137.50
0089	624-0410		SF	SOUND BARRIER	85669.000	24.00	2056056.00
0090	641-1100		LF	GUARDRAIL, TP T	350.000	44.04	15417.47
0091	641-1200		LF	GUARDRAIL, TP W	6000.000	14.81	88883.28
0092	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	2.000	588.33	1176.67
0093	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	4.000	1735.78	6943.15
0100	634-1200		EA	RIGHT OF WAY MARKERS	29.000	107.70	3123.30
0105	550-1180		LF	STM DR PIPE 18", H 1-10	3300.000	27.60	91096.14
0110	550-1181		LF	STM DR PIPE 18", H 10-15	160.000	27.22	4355.56
0113	550-1182		LF	STM DR PIPE 18", H 15-20	270.000	36.57	9874.42
0114	550-1183		LF	STM DR PIPE 18", H 20-25	270.000	34.74	9380.16
0115	550-1242		LF	STM DR PIPE 24", H 15-20	250.000	31.19	7798.46
0118	550-1245		LF	STM DR PIPE 24", H 30-35	60.000	80.89	4853.40
0120	550-1305		LF	STM DR PIPE 30", H 30-35	140.000	44.64	6249.60
0125	550-1484		LF	STM DR PIPE 48", H 25-30	320.000	107.59	34431.63
0130	550-1541		LF	STM DR PIPE 54", H 10-15	20.000	130.70	2614.13
0135	550-4218		EA	FLARED END SECT 18 IN, ST DR	10.000	443.51	4435.16
0140	550-4230		EA	FLARED END SECT 30 IN, ST DR	1.000	669.50	669.51

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0150	576-1018	LF	SLOPE DRAIN PIPE, 18 IN	470.000	25.95	12198.29
0160	611-3010	EA	RECONSTR DROP INLET, GROUP 1	2.000	1447.47	2894.96
0170	611-8040	EA	ADJUST DROP INLET TO GRADE	12.000	847.72	10172.66
0180	668-1100	EA	CATCH BASIN, GP 1	1.000	2208.48	2208.49
0185	668-1110	LF	CATCH BASIN, GP 1, ADDL DEPTH	3.000	176.53	529.59
0186	668-2100	EA	DROP INLET, GP 1	59.000	1851.03	109211.03
0187	668-2110	LF	DROP INLET, GP 1, ADDL DEPTH	107.000	131.40	14059.92
0188	668-4300	EA	STORM SEW MANHOLE, TP 1	1.000	1753.33	1753.33
0189	668-4311	LF	ST SEW MANHOLE, TP 1, A DEP, CL 1	2.000	180.06	360.13
0210	500-3104	CY	CL A CONC, SIGNS	4.000	617.29	2469.20
0211	624-0410	SF	SOUND BARRIER	28560.000	24.35	695436.00
0221	636-1033	SF	HWY SIGNS, TP1MAT, REFL SH TP 9	160.000	20.56	3291.03
0226	636-1041	SF	HWY SIGNS, TP 2MAT, REFL SH TP 9	70.000	36.93	2585.72
0231	636-1077	SF	HWY SIGN, ALUM EXT PL, REFL SHT, TP 9	2650.000	23.95	63480.64
0236	636-2090	LF	GALV STEEL POSTS, TP 9	325.000	6.64	2160.22
0241	636-3000	LB	GALV STEEL STR SHAPE POST	910.000	5.44	4956.29
0246	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 71+46 RAMP CDS	1.000	67300.00	67300.00
0251	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 84+66 RAMP CDS	1.000	67300.00	67300.00
0256	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 94+00 RAMP CDS	1.000	67300.00	67300.00
0261	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 1080+56 I-75 SB	1.000	67300.00	67300.00
0266	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 1094+00 I-75 SB	1.000	67300.00	67300.00
0271	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 61+53 RAMP CDWN	1.000	67300.00	67300.00
0276	638-1003	LS	STR SUPPORT OVHD, SIGN, TPII STA 33+80 RAMP I SE	1.000	25600.00	25600.00
0281	638-1003	LS	STR SUPPORT OVHD, SIGN, TPII STA 134+32 RAMP CDWN	1.000	25600.00	25600.00
0286	654-1003	EA	RAISED PVMT MARKERS TP 3	760.000	4.61	3509.84
0291	657-1085	LF	PRF PL SD PVT MKG, 8", B/W, TP PB	25900.000	3.79	98271.59
0296	657-1104	LF	PRF PL SD PVMT MKG, 10", WH, TPPB	6100.000	7.11	43420.90
0301	657-3085	GLF	PRF PL SK PVMT MKG, 8", B/W, TPPB	27200.000	3.08	83941.92
0306	657-6085	LF	PRF PL SD PVMT MKG, 8", B/Y, TPPB	25800.000	3.90	100810.92
0311	163-0232	AC	TEMPORARY GRASSING	15.000	319.21	4788.28
0316	163-0240	TN	MULCH	140.000	263.80	36932.78
0321	163-0300	EA	CONSTRUCTION EXIT	10.000	1094.18	10941.82
0326	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	12.000	268.03	3216.39
0331	163-0528	LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	1200.000	3.40	4090.14
0336	163-0529	LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	90.000	4.08	367.65
0341	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	75.000	84.59	6344.89
0346	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	2300.000	0.66	1538.08
0351	165-0041	LF	MAINT OF CHECK DAMS - ALL TYPES	650.000	0.00	0.00
0356	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	12.000	67.00	804.10
0361	165-0101	EA	MAINT OF CONST EXIT	3.000	387.77	1163.32
0366	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	75.000	48.72	3654.34
0371	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53

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0376	167-1500	MO	WATER QUALITY INSPECTIONS	36.000	620.65	22343.53
0381	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	4600.000	2.98	13717.66
0386	700-6910	AC	PERMANENT GRASSING	30.000	679.56	20386.97
0391	700-7000	TN	AGRICULTURAL LIME	90.000	40.48	3643.24
0396	700-8000	TN	FERTILIZER MIXED GRADE	27.000	478.87	12929.54
0401	700-8100	LB	FERTILIZER NITROGEN CONTENT	1500.000	2.19	3292.02
0406	716-2000	SY	EROSION CONTROL MATS, SLOPES	44500.000	0.90	40082.49
0411	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 10	1600.000	33.09	52949.74
0416	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 10	1200.000	33.64	40373.23
0421	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 10	90.000	42.14	3793.43
0426	627-1100	LF	COPING A, WALL NO - 10	170.000	75.64	12860.15
0431	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 11	8000.000	29.03	232275.44
0436	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 11	6300.000	28.22	177808.81
0441	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 11	1100.000	42.14	46364.11
0446	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 11	790.000	172.89	136590.91
0451	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 13A	4800.000	30.26	145275.41
0456	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 13A	2800.000	30.75	86115.99
0461	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 13A	160.000	42.14	6743.87
0466	627-1140	LF	TRAFFIC BARRIER V, WALL NO - 13A	470.000	208.56	98024.43
0471	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 15	4300.000	30.53	131311.77
0476	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 15	3600.000	29.94	107811.40
0481	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 15	400.000	172.89	69159.95
0486	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 17A	2600.000	31.81	82712.94
0491	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 17A	2000.000	31.87	63743.78
0496	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 17A	2000.000	42.14	84298.38
0501	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - 17A	650.000	44.43	28884.69
0506	627-1100	LF	COPING A, WALL NO - 17A	270.000	74.04	19991.30
0511	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 26	15300.000	27.54	421413.87
0516	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 26	13500.000	26.03	351461.97
0521	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 26	11200.000	42.14	472070.93
0526	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - 26	1800.000	44.43	79988.36
0531	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 26	1700.000	172.89	293929.80
0536	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO -	4100.000	30.65	125690.01

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0541 627-1010 SF 30 MSE WALL FACE, 10 - 20 FT HT, WALL NO - 3300.000 30.22 99742.37  
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0546	627-1020	SF	30 MSE WALL FACE, 20 - 30 FT HT, WALL NO - 30	570.000	42.14	24025.04
0551	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 30	450.000	172.89	77804.95
0556	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 16	173.000	43.91	7596.73
0561	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 16	600.000	20.04	12029.90
0566	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 16	7812.000	2.53	19831.78
0571	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 16	1.000	1318614.00	1318614.00
0576	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 16	2704.000	33.17	89696.87
0581	500-3002	CY	CL AA CONCRETE BRIDGE NO. 16	3771.000	568.79	2144909.84
0586	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- 16	300.000	91.07	27321.29
0591	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- 16	1120.000	111.15	124491.11
0596	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 16	2624.000	135.96	356783.97
0601	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 16	450.000	156.10	70245.90
0606	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 16	9236.000	195.80	1808413.60
0611	511-1000	LB	BAR REINF STEEL BRIDGE NO. 16	603422.000	0.52	315619.88
0616	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 16	1.000	290871.00	290871.00
0621	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 16	11580.000	41.55	481150.04
0626	520-4147	EA	LOAD TEST, STEEL H, HP 14 X 73 BRIDGE NO. 16	1.000	0.83	0.83
0631	522-1000	LS	SHORING BRIDGE NO. 16	1.000	377442.00	377442.00
0636	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 16	4606.000	37.23	171495.43
0641	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 16	4606.000	3.32	15296.25
0646	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 22	88.000	29.09	2559.97
0651	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 22	892.000	45.66	40736.55
0656	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 22	1406.000	4.35	6122.37
0661	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 22	1.000	198800.00	198800.00
0666	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 22	633.000	39.98	25312.54
0671	500-3002	CY	CL AA CONCRETE BRIDGE NO. 22	427.000	578.23	246904.54
0676	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- 22	514.000	89.43	45970.67
0681	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- 22	1200.000	110.52	132634.81
0686	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 22	816.000	142.57	116337.71
0691	511-1000	LB	BAR REINF STEEL BRIDGE NO. 22	62750.000	0.63	40096.00
0696	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 22	1.000	53013.00	53013.00
0701	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 22	2760.000	45.63	125948.82
0706	522-1000	LS	SHORING BRIDGE NO. 22	1.000	125814.00	125814.00
0711	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 23	427.000	22.50	9609.62
0716	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 23	1784.000	41.72	74433.21
0721	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 23	5544.000	2.82	15677.77
0726	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 23	1.000	792858.00	792858.00
0731	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 23.	1986.000	34.51	68548.80

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0736	500-3002	CY	CL AA CONCRETE BRIDGE NO. 23	1844.000	568.79	1048850.11
0741	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- 23	990.000	91.07	90160.27
0746	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- 23	2862.000	102.96	294682.85

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0751	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 23	2214.000	136.91	303119.51
0756	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 23	3854.000	195.80	754615.20
0761	511-1000	LB	BAR REINF STEEL BRIDGE NO. 23	271098.000	0.56	152194.42
0766	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 23	1.000	211429.00	211429.00
0771	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 23	9960.000	41.96	417936.04
0776	522-1000	LS	SHORING BRIDGE NO. 23	1.000	125814.00	125814.00
0781	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 24	169.000	26.16	4421.63
0786	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 24	1784.000	41.72	74433.21
0791	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 24	1674.000	4.12	6899.99
0796	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 24	1.000	273886.00	273886.00
0801	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 24	1159.000	36.99	42875.33
0806	500-3002	CY	CL AA CONCRETE BRIDGE NO. 24	648.000	537.13	348064.08
0811	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- 24	1128.000	111.08	125307.57
0816	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 24	536.000	156.10	83670.67
0821	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 24	1810.000	195.80	354398.94
0826	511-1000	LB	BAR REINF STEEL BRIDGE NO. 24	95240.000	0.61	58651.65
0831	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 24	1.000	73036.00	73036.00
0836	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 24	4320.000	44.31	191447.28
0841	522-1000	LS	SHORING BRIDGE NO. 24	1.000	125814.00	125814.00
0846	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 24	1.000	254160.00	254160.00
0851	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 25	80.000	29.54	2363.57
0856	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 25	1784.000	41.72	74433.21
0861	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 25	1478.000	4.28	6335.55
0866	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 25	1.000	410.00	410.00
0871	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 25	605.000	40.22	24334.16
0876	500-3002	CY	CL AA CONCRETE BRIDGE NO. 25	455.000	571.77	260158.08
0881	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 25	726.000	143.24	103998.45
0886	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 25	1795.000	195.80	351461.93
0891	511-1000	LB	BAR REINF STEEL BRIDGE NO. 25	66890.000	0.63	42500.57
0896	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 25	1.000	66919.00	66919.00
0901	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 25	2280.000	46.20	105352.28
0906	522-1000	LS	SHORING BRIDGE NO. 25	1.000	125814.00	125814.00
0911	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 25	1.000	237990.00	237990.00
0916	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 25A	1784.000	41.72	74433.21
0921	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 25A	419.000	6.37	2670.40
0926	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 25A	1.000	34054.00	34054.00
0931	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 25A	159.000	47.77	7595.44
0936	500-3002	CY	CL AA CONCRETE BRIDGE NO. 25A	22.000	568.79	12513.40
0941	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- 25A	318.000	123.17	39169.52

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0946	511-1000	LB	BAR REINF STEEL BRIDGE NO. 25A	3210.000	0.83	2668.06
0951	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 25A	1.000	9081.00	9081.00
0956	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 25A	360.000	52.13	18767.87

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0961	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 26	42.000	32.80	1377.86
0966	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 26	1784.000	41.72	74433.21
0971	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 26	1284.000	4.48	5753.10
0976	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 26	1.000	173241.00	173241.00
0981	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 26	458.000	41.68	19093.50
0986	500-3002	CY	CL AA CONCRETE BRIDGE NO. 26	289.000	619.53	179045.23
0991	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 26	609.000	144.27	87862.82
0996	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 26	1222.000	156.10	190756.64
1001	511-1000	LB	BAR REINF STEEL BRIDGE NO. 26	42471.000	0.66	28091.59
1006	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 26	1.000	46198.00	46198.00
1011	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 26	1560.000	47.36	73893.71
1016	522-1000	LS	SHORING BRIDGE NO. 26	1.000	125814.00	125814.00

ITEM TOTAL						45194139.97
INFLATED ITEM TOTAL						45194139.97

TOTALS FOR JOB 11516 P3

ESTIMATED COST:		45194140.02
CONTINGENCY PERCENT ( 0.0 ):		0.00
ESTIMATED TOTAL:		45194140.02



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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P3 MTG                      SPEC YEAR: 01  
DESCRIPTION: I-16/I-75 PHASE 3 MITIGATION COST ESTIMATE

ITEMS FOR JOB 11516 P3 MTG

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	624-0400		SF	SOUND BARRIER, TYPE- ADD' L COST FOR CONC	85669.000	21.00	1799049.00
0010	624-0410		SF	VISUAL BARRIER	8940.000	45.00	402300.00
ITEM TOTAL							2201349.00
INFLATED ITEM TOTAL							2201349.00

TOTALS FOR JOB 11516 P3 MTG

ESTIMATED COST:	2201349.00
CONTINGENCY PERCENT ( 0.0 ):	0.00
ESTIMATED TOTAL:	2201349.00

PROJ. NO.

PHASE 3 - PROJECT NO. NHIMO-0016-01(104)

CALL NO.

P.I. NO.

311410

DATE

11/10/2011

## INDEX (TYPE)

DATE INDEX

REG. UNLEADED

Nov-11 \$ 3.353

DIESEL

Nov-11 \$ 3.847

LIQUID AC

Nov-11 \$ 558.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

622728

\$

622,728.00

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

892.80

Monthly Asphalt Cement Price month project let (APL)

\$

558.00

Total Monthly Tonnage of asphalt cement (TMT)

1860

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 SMA	0	5.0%	0
12.5 mm SP	2600	5.0%	130
9.5 mm SP	0	5.0%	0
25 mm SP	10300	5.0%	515
19 mm SP	24300	5.0%	1215
	<b>37200</b>		<b>1860</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$

3,163.60

\$

3,163.60

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

892.80

Monthly Asphalt Cement Price month project let (APL)

\$

558.00

Total Monthly Tonnage of asphalt cement (TMT)

9.449222028

Bitum Tack

Gals	gals/ton	tons
2200	232.8234	9.44922203

PROJ. NO.

PHASE 3 - PROJECT NO. NHIMO-0016-01(104)

CALL NO.

P.I. NO.

311410

DATE

11/10/2011

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	892.80			
Monthly Asphalt Cement Price month project let (APL)				\$	558.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>625,891.60</b>
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# Preliminary Right of Way Cost Estimate

**Date:** December 30, 2008  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 3 **No. Parcels:** 25  
**Land:**

Commercial R/W:	8,873 s.f @ \$ 2.50 /s.f. =	\$ 22,183	
Industrial R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential R/W:	5,565 s.f @ \$ 1.05 /s.f. =	\$ 5,843	
Agricultural R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Commercial Esmt:	4,542 s.f @ \$ 1.25 /s.f. =	\$ 5,678	
Industrial Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential Esmt:	18,698 s.f @ \$ 0.55 /s.f. =	\$ 10,284	
Agricultural Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
<b>TOTAL</b>			<b>\$ 43,988</b>

**Improvements:** 1 houses, curbing, paving, signs, fencing, site improvements, etc. **\$ 75,318**

**Relocation:**  
 Commercial ( 0 ) @ \$25,000 /parcel = \$ 0  
 Residential ( 1 ) @ \$40,000 /parcel = \$ 40,000  
**TOTAL** **\$ 40,000**

**Damages:**  
 Proximity- \$ 0  
 Consequential- \$ 0  
 Cost To Cure- \$ 0  
**TOTAL** **\$ 0**

**SUB-TOTAL:** **\$ 159,306**

Net Cost		\$ 159,306
Scheduling Contingency	55 %	87,618
Adm/Court Cost	60 %	148,155
<b>TOTAL</b>		<b>\$ 395,079</b>

**Total Cost** **\$ 395,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 744,699 sf on 7 parcels owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 12/30/08.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P4  
DESCRIPTION: I-16 / I-75 PHASE 4  
SPEC YEAR: 01

ITEMS FOR JOB 11516 P4

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	1782057.00	1782057.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	57385.59	57385.59
0015	201-1500		LS	CLEARING & GRUBBING - PROJECT	1.000	2250000.00	2250000.00
0024	208-0100		CY	IN PLACE EMBANKMENT	237500.000	6.00	1425415.63
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	650000.00	650000.00
0059	310-5120		SY	GR AGGR BS CRS 12IN INCL MATL	83753.000	14.98	1255145.91
0060	402-3113		TN	RECYL AC 12.5MM SP,GP1/2,BM&HL	1101.000	74.31	81815.31
0061	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	4404.000	62.06	273312.72
0062	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	19293.500	56.96	1099067.93
0063	413-1000		GL	BITUM TACK COAT	12805.500	2.39	30605.53
0064	430-0620		SY	PLN PC CONC PVMT/HES/ 12" TK	108035.000	75.33	8138276.55
0065	441-0104		SY	CONC SIDEWALK, 4 IN	3242.500	19.09	61917.39
0070	441-0756		SY	CONC MEDIAN, 8 IN	312.500	44.98	14056.75
0075	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	7636.500	12.26	93625.17
0080	500-3101		CY	CLASS A CONCRETE	109.000	502.67	54791.08
0085	511-1000		LB	BAR REINF STEEL	13747.500	0.73	10047.09
0090	550-1300		LF	STM DR PIPE 30",H 1-10	7500.000	37.43	280774.43
0095	621-4085		LF	CONCRETE SIDE BARRIER, TP 7W	1000.000	39.77	39772.97
0100	627-1160		LF	TRAFFIC BARRIER H, WALL NO - PROJECT	4855.000	172.89	839428.92
0105	641-1200		LF	GUARDRAIL, TP W	14225.000	14.15	201376.21
0110	648-1500		EA	IMPACT ATT UNIT/ARRAY, TP-S- PROJECT	1.000	40000.00	40000.00
0115	668-1100		EA	CATCH BASIN, GP 1	140.000	2003.58	280502.25
0120	610-6515		EA	REM HIGHWAY SIGN, STD	5.000	68.33	341.69
0125	610-6520		EA	REM HWY SIGN, SPCL ROADSIDE	6.000	442.17	2653.03
0130	610-9310		LS	REM STR SUPPORT, TP - PROJECT	1.000	3633.62	3633.62
0135	615-1200		LF	DIRECTIONAL BORE - PROJECT	150.000	12.26	1840.23
0140	636-1032		SF	HWY SIGNS,TP2MATL,RFL SHTG,TP6	130.000	20.80	2704.00
0145	636-1072		SF	HWY SIGNS,ALUM EXTRD PNLS, RS TP 3	2678.000	18.04	48336.80
0150	636-3000		LB	GALV STEEL STR SHAPE POST	1063.000	5.28	5617.42
0155	636-9094		LF	P-IN-PL,SIGNS,STL H,HP 12 X 53	12.500	83.80	1047.52
0160	638-1001		LS	STR SUPPORT OVHD SIGN,TP 1,STA PROJECT	1.000	67223.88	67223.88
0165	638-1003		LS	STR SUPPORT OVHD,SIGN,TPIISTA PROJECT	1.000	25520.75	25520.75
0170	639-2001		LF	STEEL WIRE STRAND CABLE, 1/4"	300.000	2.28	684.41
0175	639-2002		LF	STEEL WIRE STRAND CABLE, 3/8"	200.000	3.41	682.69
0180	639-4003		EA	STRAIN POLE, TP III	2.000	6425.83	12851.67
0185	639-4004		EA	STRAIN POLE, TP IV	11.000	5597.18	61569.03
0190	647-1000		LS	TRAF SIGNAL INSTALLATION NO - PROJECT	1.000	23089.73	23089.73
0195	653-0120		EA	THERM PVMT MARK, ARROW, TP 2	35.000	98.10	3433.54
0200	653-0210		EA	THERM PVMT MARK, WORD , TP 1	8.000	101.97	815.77
0205	653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	14050.000	0.41	5824.29
0210	653-1502		LF	THERMO SOLID TRAF ST, 5 IN YEL	89500.000	0.30	27573.16
0215	653-1704		LF	THERM SOLID TRAF STRIPE,24",WH	415.000	4.79	1988.57
0220	653-1804		LF	THERM SOLID TRAF STRIPE, 8",WH	8750.000	2.16	18940.34
0225	653-3501		GLF	THERMO SKIP TRAF ST, 5 IN, WHI	23750.000	0.15	3640.88
0230	653-6004		SY	THERM TRAF STRIPING, WHITE	120.000	3.20	385.02

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0235	654-1003		EA	RAISED PVMT MARKERS TP 3	290.000	4.84	1405.06
0240	655-5000		EA	PVMT ARROW THERM W/R REFLECTOR	2.000	247.86	495.72
0245	655-7000		EA	PVMT ARROW, PREFORM PLASTIC W/RAISE	2.000	340.12	680.24
				REFL			
0250	657-1085		LF	PRF PL SD PVT MKG,8",B/W,TP PB	14013.000	4.04	56612.80
0255	657-1104		LF	PRF PL SD PVMT MKG,10",WH,TPPB	3500.000	7.11	24913.63

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0260	657-3085	GLF	PRF PL SK PVMT MKG,8",B/W,TPPB	8225.000	3.32	27333.16
0265	657-5001	SY	PREFORMED PLASTIC PVMT MKG, WHITE, TP PB	100.000	22.72	2272.52
0270	657-5003	EA	PRF PLASTIC PVMT MKG, WORD TP 1, TP PB	2.000	478.87	957.75
0275	657-5017	EA	PRF PL PVT MKG,ARW TP2,WH,TPPB	3.000	494.62	1483.88
0280	657-6085	LF	PRF PL SD PVMT MKG,8",B/Y,TPPB	3.000	8.81	26.43
0285	682-6233	LF	CONDUIT, NONMETL, TP 3, 2 IN	750.000	3.42	2571.89
0290	682-7042	LF	MULTI-CELL COND SYS,4-WAY,RIGID METAL	170.000	49.78	8462.60
0295	682-7043	LF	MULTI-CELL COND SYS,4-WAY,FIBERGLASS	130.000	40.77	5300.10
0300	935-1521	LF	OUT PLNT FBR OPT CBL,DROP,MM,6 FBR	400.000	2.27	908.00
0305	935-3103	EA	FIBER OPTIC CLOSURE,UNDRGRD,24 FBR	4.000	646.32	2585.29
0310	935-4010	EA	FIBER OPTIC SPLICE, FUSION	19.000	45.66	867.70
0315	935-5060	EA	FIBER OPTIC SNOWSHOE	1.000	222.79	222.80
0320	935-6561	EA	EXT TRNSCVR,DRP&RPT,1300MM,(SIGNAL JOBS)	3.000	2238.80	6716.40
0325	935-8000	LS	TESTING	1.000	2315.09	2315.09
0330	938-1100	EA	INT VIDEO DET SYS ASMBLY, TP A	2.000	4771.83	9543.66
0335	938-1200	EA	PROGRAMMING MONITOR, TYPE A	1.000	353.91	353.91
0340	938-8000	LS	TESTING	1.000	1860.38	1860.38
0345	938-8500	LS	TRAINING	1.000	2521.18	2521.18
0350	162-1300	EA	EROSION CONTROL CHECK DAM, TP - PROJECT	92.000	1500.00	138000.00
0355	163-0232	AC	TEMPORARY GRASSING	25.000	318.96	7974.06
0360	163-0240	TN	MULCH	795.000	263.80	209725.42
0365	163-0300	EA	CONSTRUCTION EXIT	24.000	1028.08	24674.03
0370	163-0501	EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 1	2.500	513.08	1282.71
0375	163-0502	EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 2	10.000	513.39	5133.91
0380	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 3	22.500	349.95	7873.88
0385	163-0504	EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 4	125.000	119.32	14915.00
0390	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	11250.000	12.96	145867.28
0395	163-0521	EA	CONSTR AND REMOVE TEMP DITCH CHECKS	122.500	216.24	26489.40
0400	163-0530	LF	CONSTR AND REMOVE BALED STRW EROSION CHK	12250.000	2.96	36260.00
0405	163-0531	EA	CONSTR & REM SEDIMENT BASIN,TP 1,STA NO- PROJECT	2.000	6602.97	13205.95
0410	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	275.000	82.73	22751.62
0415	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	21625.000	0.56	12322.14
0420	165-0020	LF	MAINT OF TEMP SILT FENCE, TP B	750.000	0.94	708.71
0425	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	68750.000	0.48	33213.81
0430	165-0040	EA	MAINT OF EROSION CTRL CHKDAMS/DITCH CHKS	215.000	87.42	18795.30

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0435	165-0050	LF	MAINT OF SILT RETENTION BARRIER	2000.000	2.14	4289.82
0440	165-0060	EA	MAINT OF TEMP SEDIMENT BASIN,STA NO -	2.000	982.61	1965.23
0445	165-0070	LF	MAINT OF BALED STRAW EROSION CHECK	6125.000	1.62	9922.50
0450	165-0085	EA	MAINT OF SILT CONTROL GATE, TP 1	3.000	142.60	427.82
0455	165-0086	EA	MAINT OF SILT CONTROL GATE, TP 2	10.000	139.11	1391.13
0460	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	23.000	62.80	1444.61
0465	165-0088	EA	MAINT OF SILT CONTROL GATE, TP 4	125.000	42.96	5370.00
0470	165-0101	EA	MAINT OF CONST EXIT	24.000	377.56	9061.47
0475	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	275.000	46.86	12888.67
0480	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53
0485	167-1500	MO	WATER QUALITY INSPECTIONS	27.000	699.33	18882.13
0490	170-2000	LF	STAKED SILT RETENTION BARRIER	2000.000	6.23	12461.84
0495	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	43250.000	1.56	67757.18
0500	171-0020	LF	TEMPORARY SILT FENCE, TYPE B	1500.000	1.21	1821.96
0505	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	137500.000	2.73	376627.63
0510	603-2012	SY	STN DUMPED RIP RAP, TP 1, 12"	41500.000	36.66	1521390.00

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0515	603-7000	SY	PLASTIC FILTER FABRIC	41500.000	3.04	126429.34
0520	700-6910	AC	PERMANENT GRASSING	49.500	670.36	33182.86
0525	700-7000	TN	AGRICULTURAL LIME	115.000	40.21	4625.17
0530	700-7010	GL	LIQUID LIME	95.000	19.79	1880.78
0535	700-8000	TN	FERTILIZER MIXED GRADE	5.000	501.70	2508.52
0540	700-8100	LB	FERTILIZER NITROGEN CONTENT	1900.000	2.16	4106.28
0545	710-9000	SY	PERM SOIL REINFORCING MAT	31000.000	3.30	102523.82
0550	715-2200	SY	BITUM TRTD ROVING, WATERWAYS	21000.000	1.52	31940.58
0555	716-2000	SY	EROSION CONTROL MATS, SLOPES	121500.000	0.83	101606.81
0560	540-1101	LS	REM OF EX BR, STA NO - 0	1.000	0.00	0.00
0565	540-1101	LS	REM OF EX BR, STA NO - 0	1.000	0.00	0.00
0570	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 2	70.000	30.19	2113.50
0575	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 2	1160.000	44.13	51192.02
0580	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 2	1473.000	4.29	6320.85
0585	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 2	1.000	193608.00	193608.00
0590	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 2	380.000	42.70	16227.04
0595	500-3002	CY	CL AA CONCRETE BRIDGE NO. 2	265.000	629.10	166711.52
0600	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- BRIDGE NO. 2	3037.000	91.07	276582.57
0605	511-1000	LB	BAR REINF STEEL BRIDGE NO. 2	38972.000	0.66	25974.06
0610	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 2	1.000	51629.00	51629.00
0615	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 2	2574.000	45.84	117997.90
0620	522-1000	LS	SHORING BRIDGE NO. 2	1.000	81779.00	81779.00
0625	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 2	1.000	218536.00	218536.00
0630	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 4	112.000	27.97	3132.92
0635	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 4	1784.000	41.72	74433.21
0640	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 4	2420.000	3.67	8882.76
0645	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 4	1.000	442906.00	442906.00
0650	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 4	1579.000	35.54	56133.39
0655	500-3002	CY	CL AA CONCRETE BRIDGE NO. 4	807.000	516.70	416978.94

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0660	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- BRIDGE NO. 4	934.000	91.07	85060.30
0665	507-9003	LF	PSC BEAMS,AASHTO TP III, BR NO- BRIDGE NO. 4	480.000	119.10	57171.13
0670	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 4	3600.000	195.80	704881.87
0675	511-1000	LB	BAR REINF STEEL BRIDGE NO. 4	118565.000	0.60	71614.45
0680	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 4	1.000	118108.00	118108.00
0685	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 4	4080.000	44.48	181488.19
0690	522-1000	LS	SHORING BRIDGE NO. 4	1.000	125814.00	125814.00
0695	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 5	320.000	20.49	6558.28
0700	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 5	3874.000	3.16	12263.03
0705	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 5	1.000	647635.00	647635.00
0710	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 5	1476.000	35.85	52929.29
0715	500-3002	CY	CL AA CONCRETE BRIDGE NO. 5	1354.000	568.79	770142.65
0720	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- BRIDGE NO. 5	329.000	91.07	29962.35
0725	507-9003	LF	PSC BEAMS,AASHTO TP III, BR NO- BRIDGE NO. 5	2891.000	102.87	297424.11
0730	507-9030	LF	PSC BEAMS,AASHTO,BULB TEE, 54" BRIDGE NO. 5	2522.000	136.18	343467.32
0735	511-1000	LB	BAR REINF STEEL BRIDGE NO. 5	199000.000	0.57	114817.03
0740	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 5	1.000	172703.00	172703.00
0745	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 5	6360.000	43.21	274815.98
0750	522-1000	LS	SHORING BRIDGE NO. 5	1.000	125814.00	125814.00



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0755	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 5	3237.000	37.51	121448.84
0760	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 5	3237.000	3.36	10899.69
0765	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 6	784.000	19.86	15572.99
0770	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 6	15953.000	2.02	32350.29
0775	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 6	1.000	2645762.00	2645762.00
0780	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 6	2587.000	33.36	86305.71
0785	500-3002	CY	CL AA CONCRETE BRIDGE NO. 6	5723.000	568.79	3255189.35
0790	507-9003	LF	PSC BEAMS,AASHTO TP III, BR NO- BRIDGE NO. 6	1152.000	110.89	127754.10
0795	507-9030	LF	PSC BEAMS,AASHTO,BULB TEE, 54" BRIDGE NO. 6	3232.000	134.82	435752.01
0800	507-9031	LF	PSC BEAMS,AASHTO,BULB TEE, 63" BRIDGE NO. 6	2270.000	156.10	354351.54
0805	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 6	16496.000	195.80	3229925.38
0810	511-1000	LB	BAR REINF STEEL BRIDGE NO. 6	841311.000	0.50	427293.44
0815	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 6	1.000	705537.00	705537.00
0820	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 6	14160.000	41.00	580663.93
0825	522-1000	LS	SHORING BRIDGE NO. 6	1.000	251628.00	251628.00
0830	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 6	1.000	2643420.00	2643420.00

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0835	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 6	3237.000	37.51	121448.84
0840	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 6	3237.000	3.36	10899.69
0845	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 8	81.000	29.48	2388.29
0850	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 8	981.000	45.10	44248.99
0855	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 8	1868.000	3.98	7438.53
0860	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 8	1.000	241654.00	241654.00
0865	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 8	493.000	41.29	20358.74
0870	500-3002	CY	CL AA CONCRETE BRIDGE NO. 8	321.000	608.14	195213.15
0875	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- BRIDGE NO. 8	601.000	89.43	53751.70
0880	507-9003	LF	PSC BEAMS,AASHTO TP III, BR NO- BRIDGE NO. 8	2233.000	105.06	234620.24
0885	511-1000	LB	BAR REINF STEEL BRIDGE NO. 8	47119.000	0.65	30880.85
0890	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 8	1.000	102479.00	102479.00
0895	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 8	2409.000	46.04	110913.25
0900	522-1000	LS	SHORING BRIDGE NO. 8	1.000	69198.00	69198.00
0905	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 8	1.000	379170.00	379170.00
0910	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 11	105.000	45.16	4742.10
0915	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 11	947.000	19.77	18724.58
0920	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 11	6131.000	2.73	16797.28
0925	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 11	1.000	1247256.00	1247256.00
0930	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 11	2589.000	33.35	86363.84
0935	500-3002	CY	CL AA CONCRETE BRIDGE NO. 11	1470.000	568.79	836122.37
0940	507-9003	LF	PSC BEAMS,AASHTO TP III, BR NO- BRIDGE NO. 11	1249.000	110.16	137600.81
0945	507-9031	LF	PSC BEAMS,AASHTO,BULB TEE, 63" BRIDGE NO. 11	8104.000	156.10	1265050.61
0950	511-1000	LB	BAR REINF STEEL BRIDGE NO. 11	284832.000	0.55	159209.69
0955	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 11	1.000	250509.00	250509.00
0960	520-1125	LF	PIL-IN-PL,STEEL H,HP 12 X 53 BRIDGE NO. 11	810.000	39.18	31739.61
0965	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 11	3190.000	45.20	144199.93
0970	520-4125	EA	LOAD TEST, STEEL H, HP 12 X 53 BRIDGE	1.000	0.82	0.83

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0975	520-4147	EA	NO. 11 LOAD TEST, STEEL H, HP 14 X 73 BRIDGE	1.000	0.83	0.83
0980	524-0010	LF	NO. 11 DRILLED CAISSON - BRIDGE NO. 11	524.000	675.11	353762.05
0985	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 11	1.000	1301910.00	1301910.00
0990	544-1000	LS	DECK DRAIN SYSTEM, BR NO - BRIDGE NO. 11	1.000	59925.00	59925.00
0995	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 11	1569.000	38.11	59799.08
1000	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 11	1569.000	3.46	5435.44
1005	620-0100	LF	TEMP BARRIER, METHOD NO. 1 BRIDGE NO. 11	1065.000	31.03	33052.02

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1010	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 11A	26.000	48.85	1270.17
1015	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 11A	92.000	21.40	1969.35
1020	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 11A	2600.000	3.58	9330.44
1025	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 11A	1.000	437535.00	437535.00
1030	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 11A	1170.000	36.94	43229.66
1035	500-3002	CY	CL AA CONCRETE BRIDGE NO. 11A	460.000	570.67	262509.39
1040	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 11A	420.000	120.41	50572.58
1045	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 11A	3675.000	156.10	573674.85
1050	511-1000	LB	BAR REINF STEEL BRIDGE NO. 11A	73592.000	0.63	46365.90
1055	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 11A	1.000	96515.00	96515.00
1060	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 11A	2460.000	45.97	113106.35
1065	522-1000	LS	SHORING BRIDGE NO. 11A	1.000	125814.00	125814.00
1070	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 11A	4606.000	37.23	171495.43
1075	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 11A	4606.000	3.32	15296.25
1080	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 12	69.000	46.24	3190.72
1085	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 12	240.000	20.70	4968.35
1090	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 12	3944.000	3.14	12414.45
1095	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 12	1.000	654229.00	654229.00
1100	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 12	1775.000	35.01	62158.03
1105	500-3002	CY	CL AA CONCRETE BRIDGE NO. 12	1601.000	568.79	910633.96
1110	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 12	586.000	117.18	68669.64
1115	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 12	4545.000	156.10	709483.59
1120	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 12	1082.000	195.80	211856.16
1125	511-1000	LB	BAR REINF STEEL BRIDGE NO. 12	256152.000	0.56	144528.64
1130	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 12	1.000	144315.00	144315.00
1135	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 12	5400.000	43.67	235843.60
1140	522-1000	LS	SHORING BRIDGE NO. 12	1.000	125814.00	125814.00
1145	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 12	4606.000	37.23	171495.43
1150	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 12	4606.000	3.32	15296.25
1155	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 13	108.000	45.09	4869.86
1160	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 13	373.000	20.38	7603.71
1165	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 13	4905.000	2.93	14415.60
1170	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 13	1.000	807625.00	807625.00
1175	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 13	2007.000	34.46	69179.91
1180	500-3002	CY	CL AA CONCRETE BRIDGE NO. 13	2331.000	568.79	1325851.19
1185	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE	1125.000	111.11	125001.45

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1190	507-9031	LF	NO. 13 PSC BEAMS,AASHTO,BULB TEE, 63" BRIDGE	1910.000	156.10	298154.82
1195	507-9033	LF	NO. 13 PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE	4704.000	195.80	921045.65
1200	511-1000	LB	BAR REINF STEEL BRIDGE NO. 13	372895.000	0.54	203522.36
1205	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 13	1.000	178153.00	178153.00
1210	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 13	7212.000	42.85	309080.36
1215	522-1000	LS	SHORING BRIDGE NO. 13	1.000	125814.00	125814.00
1220	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 13	4606.000	37.23	171495.43
1225	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 13	4606.000	3.32	15296.25
1230	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 17	73.000	29.98	2189.10
1235	500-3002	CY	CL AA CONCRETE BRIDGE NO. 17	230.000	568.02	130645.46
1240	501-3000	LS	STR STEEL, BR NO - BRIDGE NO. 17	1.000	777801.00	777801.00
1245	511-1000	LB	BAR REINF STEEL BRIDGE NO. 17	33871.000	0.67	22856.15
1250	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 17	2070.000	46.49	96254.88
1255	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 17	1.000	525420.00	525420.00
1260	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 19	64.000	30.63	1960.69
1265	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 19	1784.000	41.72	74433.21
1270	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 19	1098.000	4.70	5168.00
1275	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 19	1.000	170672.00	170672.00
1280	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 19	494.000	41.28	20394.71
1285	500-3002	CY	CL AA CONCRETE BRIDGE NO. 19	337.000	602.93	203189.01
1290	507-9002	LF	PSC BEAMS,AASHTO TP II, BR NO- BRIDGE NO. 19	399.000	89.43	35685.40
1295	507-9003	LF	PSC BEAMS,AASHTO TP III,BR NO- BRIDGE NO. 19	623.000	116.59	72641.74
1300	507-9030	LF	PSC BEAMS,AASHTO,BULB TEE, 54" BRIDGE NO. 19	707.000	143.40	101385.80
1305	511-1000	LB	BAR REINF STEEL BRIDGE NO. 19	49606.000	0.65	32363.45
1310	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 19	1.000	45512.00	45512.00
1315	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 19	1980.000	46.63	92337.80
1320	522-1000	LS	SHORING BRIDGE NO. 19	1.000	125814.00	125814.00
1325	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 19	1.000	252360.00	252360.00
1330	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 20	104.000	28.31	2944.39
1335	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 20	892.000	45.66	40736.55
1340	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 20	2009.000	3.89	7818.91
1345	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 20	1.000	342187.00	342187.00
1350	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 20	904.000	38.19	34528.80
1355	500-3002	CY	CL AA CONCRETE BRIDGE NO. 20	492.000	563.92	277453.27
1360	507-9030	LF	PSC BEAMS,AASHTO,BULB TEE, 54" BRIDGE NO. 20	3616.000	134.21	485308.10
1365	511-1000	LB	BAR REINF STEEL BRIDGE NO. 20	72387.000	0.63	45673.30

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1370	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 20	1.000	91250.00	91250.00
1375	520-1147	LF	PIL-IN-PL,STEEL H,HP 14 X 73 BRIDGE NO. 20	2760.000	45.63	125948.82
1380	522-1000	LS	SHORING BRIDGE NO. 20	1.000	125814.00	125814.00

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1385	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 28	10885.000	50.00	544250.00
1390	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 29	7194.000	50.00	359700.00
1395	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 54	4942.000	50.00	247100.00
1400	621-6202	LF	CONC SIDE BARRIER, TP 2-SB WALL NO. 31	2074.000	550.00	1140700.00
1405	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 37	15568.000	50.00	778400.00
1410	621-6002	LF	CONC BARRIER, TP S-2 WALL NO. 38	647.000	100.00	64700.00
1415	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 38	39025.000	50.00	1951250.00
1420	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 39	6292.000	50.00	314600.00
1425	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 41	48120.000	50.00	2406000.00
1430	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 42	4857.000	50.00	242850.00
1435	621-6003	LF	CONC BARRIER, TP S-3 WALL NO. 43	186.000	200.00	37200.00
1440	617-0510	LS	PERMANENTLY ANCHORED WALL NO - WALL NO. 44	1.000	57650.00	57650.00
1445	621-6002	LF	CONC BARRIER, TP S-2 WALL NO. 45	166.000	100.00	16600.00
1450	621-6003	LF	CONC BARRIER, TP S-3 WALL NO. 45	88.000	200.00	17600.00
1455	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 46	11252.000	50.00	562600.00
1460	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 47	5649.000	50.00	282450.00
-----						
ITEM TOTAL						74971954.08
INFLATED ITEM TOTAL						74971954.08

PROJ. NO.

PHASE 4 - PROJECT NO. NHIMO-0016-01(131)

CALL NO.

P.I. NO.

311005

DATE

11/10/2011

## INDEX (TYPE)

DATE INDEX

REG. UNLEADED

Oct-11 \$ 3.258

DIESEL

Oct-11 \$ 3.769

LIQUID AC

Sep-11 \$ 563.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

418838.22

\$

418,838.22

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 900.80

Monthly Asphalt Cement Price month project let (APL)

\$ 563.00

Total Monthly Tonnage of asphalt cement (TMT)

1239.9

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	1101	5.0%	55.05
9.5 mm SP	0	5.0%	0
25 mm SP	4404	5.0%	220.2
19 mm SP	19293	5.0%	964.65
	<b>24798</b>		<b>1239.9</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 18,578.58

\$

18,578.58

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 900.80

Monthly Asphalt Cement Price month project let (APL)

\$ 563.00

Total Monthly Tonnage of asphalt cement (TMT)

54.99876731

Bitum Tack

Gals	gals/ton	tons
12805	232.8234	54.9987673

PROJ. NO.

PHASE 4 - PROJECT NO. NHIMO-0016-01(131)

CALL NO.

P.I. NO.

311005

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**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	900.80			
Monthly Asphalt Cement Price month project let (APL)				\$	563.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>437,416.80</b>
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# Preliminary Right of Way Cost Estimate

**Date:** February 20, 2009  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 4 **No. Parcels:** 4  
**Land:**

Commercial R/W:	4,657 s.f @ \$ 2.50 /s.f. =	\$ 11,643	
Industrial R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential R/W:	0 s.f @ \$ 1.05 /s.f. =	\$ 0	
Agricultural R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Commercial Esmt:	12,785 s.f @ \$ 1.25 /s.f. =	\$ 15,981	
Industrial Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential Esmt:	0 s.f @ \$ 0.55 /s.f. =	\$ 0	
Agricultural Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
<b>TOTAL</b>			<b>\$ 27,624</b>

**Improvements:** none **\$ 0**

**Relocation:**  
 Commercial ( 0 ) @ \$25,000 /parcel = \$ 0  
 Residential ( 0 ) @ \$40,000 /parcel = \$ 0  
**TOTAL** **\$ 0**

**Damages:**  
 Proximity- \$ 0  
 Consequential- \$ 0  
 Cost To Cure- \$ 0  
**TOTAL** **\$ 0**

**SUB-TOTAL:** **\$ 27,624**

Net Cost		\$ 27,624
Scheduling Contingency	55 %	15,193
Adm/Court Cost	60 %	25,690
<b>TOTAL</b>		<b>\$ 68,508</b>

**Total Cost** **\$ 69,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 60,234 sf on 2 parcels owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 2/20/09.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.



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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P5 SPEC YEAR: 01  
DESCRIPTION: I-16 / I-75 PHASE 5

ITEMS FOR JOB 11516 P5

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	1782057.00	1782057.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	57385.59	57385.59
0015	201-1500		LS	CLEARING & GRUBBING - PROJECT	1.000	2250000.00	2250000.00
0024	208-0100		CY	IN PLACE EMBANKMENT	237500.000	6.00	1425415.63
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	650000.00	650000.00
0054	310-5120		SY	GR AGGR BS CRS 12IN INCL MATL	83753.000	14.98	1255145.91
0055	402-3113		TN	RECYL AC 12.5MM SP, GP1/2, BM&HL	1101.000	74.31	81815.31
0056	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	4404.000	62.06	273312.72
0057	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2 , INC BM&HL	19293.500	56.96	1099067.93
0058	413-1000		GL	BITUM TACK COAT	12805.500	2.39	30605.53
0059	430-0620		SY	PLN PC CONC PVMT/HES/ 12" TK	108035.000	75.33	8138276.55
0060	441-0104		SY	CONC SIDEWALK, 4 IN	3242.500	40.67	131872.48
0065	441-0756		SY	CONC MEDIAN, 8 IN	312.500	44.98	14056.75
0075	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	7637.000	12.26	93630.61
0080	500-3101		CY	CLASS A CONCRETE	109.000	502.67	54791.08
0085	511-1000		LB	BAR REINF STEEL	13748.000	0.73	10047.31
0099	621-4085		LF	CONCRETE SIDE BARRIER, TP 7W	1000.000	39.77	39772.97
0104	627-1160		LF	TRAFFIC BARRIER H, WALL NO - PROJECT	4855.000	172.89	839428.92
0109	641-1200		LF	GUARDRAIL, TP W	14225.000	14.15	201376.21
0110	648-1500		EA	IMPACT ATT UNIT/ARRAY, TP-S- PROJECT	1.000	40000.00	40000.00
0129	624-0410		SF	SOUND BARRIER	96200.000	24.00	2308800.00
0130	550-1300		LF	STM DR PIPE 30", H 1-10	7500.000	37.43	280774.43
0190	668-1100		EA	CATCH BASIN, GP 1	140.000	2003.58	280502.25
0241	610-6515		EA	REM HIGHWAY SIGN, STD	5.000	68.33	341.69
0246	610-6520		EA	REM HWY SIGN, SPCL ROADSIDE	6.000	442.17	2653.03
0251	610-9310		LS	REM STR SUPPORT, TP - PROJECT	1.000	3633.62	3633.62
0256	615-1200		LF	DIRECTIONAL BORE - PROJECT	150.000	12.26	1840.23
0261	636-1032		SF	HWY SIGNS, TP2MATL, RFL SHTG, TP6	130.000	20.80	2704.00
0266	636-1072		SF	HWY SIGNS, ALUM EXTRD PNLS, RS TP 3	2677.500	18.04	48328.34
0271	636-3000		LB	GALV STEEL STR SHAPE POST	1062.500	5.28	5615.29
0276	636-9094		LF	P-IN-PL, SIGNS, STL H, HP 12 X 53	12.500	83.80	1047.52
0281	638-1001		LS	STR SUPPORT OVHD SIGN, TP I, STA PROJECT	1.000	67223.88	67223.88
0286	638-1003		LS	STR SUPPORT OVHD, SIGN, TP III STA PROJECT	1.000	25520.75	25520.75
0291	639-2001		LF	STEEL WIRE STRAND CABLE, 1/4"	300.000	2.28	684.41
0296	639-2002		LF	STEEL WIRE STRAND CABLE, 3/8"	200.000	3.41	682.69
0301	639-4003		EA	STRAIN POLE, TP III	2.000	6425.83	12851.67
0306	639-4004		EA	STRAIN POLE, TP IV	11.000	5597.18	61569.03
0311	647-1000		LS	TRAF SIGNAL INSTALLATION NO - PROJECT	1.000	23089.73	23089.73
0316	647-2150		EA	PULL BOX, PB-5	4.000	1479.76	5919.07
0321	653-0120		EA	THERM PVMT MARK, ARROW, TP 2	35.000	98.10	3433.54
0326	653-0210		EA	THERM PVMT MARK, WORD , TP 1	8.000	101.97	815.77

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0331	653-1501	LF	THERMO SOLID TRAF ST 5 IN, WHI	14050.000	0.41	5824.29
0336	653-1502	LF	THERMO SOLID TRAF ST, 5 IN YEL	89500.000	0.30	27573.16
0341	653-1804	LF	THERM SOLID TRAF STRIPE, 8", WH	415.000	2.33	968.86
0346	653-3501	GLF	THERMO SKIP TRAF ST, 5 IN, WHI	8750.000	0.17	1546.48
0351	653-6004	SY	THERM TRAF STRIPING, WHITE	23750.000	2.57	61262.18
0356	654-1003	EA	RAISED PVMT MARKERS TP 3	120.000	5.06	607.50
0361	655-5000	EA	PVMT ARROW THERM W/R REFLECTOR	290.000	268.72	77930.61
0366	655-7000	EA	PVMT ARROW, PREFORM PLASTIC W/RAISE REFL	2.000	340.12	680.24
0371	657-1085	LF	PRF PL SD PVT MKG, 8", B/W, TP PB	2.000	9.98	19.97
0376	657-1104	LF	PRF PL SD PVMT MKG, 10", WH, TPPB	14012.500	7.11	99743.50
0381	657-3085	GLF	PRF PL SK PVMT MKG, 8", B/W, TPPB	3500.000	3.50	12262.64
0382	657-5001	SY	PREFORMED PLASTIC PVMT MKG, WHITE, TP PB	100.000	22.72	2272.52
0387	657-5003	EA	PRF PLASTIC PVMT MKG, WORD TP 1, TP PB	2.000	478.87	957.75
0392	657-5017	EA	PRF PL PVT MKG, ARW TP2, WH, TPPB	3.000	494.62	1483.88
0397	657-6085	LF	PRF PL SD PVMT MKG, 8", B/Y, TPPB	11175.000	4.21	47070.66
0402	682-6233	LF	CONDUIT, NONMETL, TP 3, 2 IN	750.000	3.42	2571.89
0406	682-7042	LF	MULTI-CELL COND SYS, 4-WAY, RIGID METAL	170.000	49.78	8462.60
0407	682-7043	LF	MULTI-CELL COND SYS, 4-WAY, FIBERGLASS	130.000	40.77	5300.10
0412	935-1521	LF	OUT PLNT FBR OPT CBL, DROP, MM, 6 FBR	400.000	2.27	908.00
0417	935-3103	EA	FIBER OPTIC CLOSURE, UNDRGRD, 24 FBR	4.000	646.32	2585.29
0422	935-4010	EA	FIBER OPTIC SPLICE, FUSION	19.000	45.66	867.70
0427	935-5060	EA	FIBER OPTIC SNOWSHOE	1.000	222.79	222.80
0432	935-6561	EA	EXT TRNSCVR, DRP&RPT, 1300MM, (SI GNAL JOBS)	3.000	2238.80	6716.40
0437	935-8000	LS	TESTING	1.000	2512.06	2512.06
0438	938-1100	EA	INT VIDEO DET SYS ASMBLY, TP A	2.000	4771.83	9543.66
0439	938-1200	EA	PROGRAMMING MONITOR, TYPE A	1.000	353.91	353.91
0440	938-8000	LS	TESTING	1.000	1860.38	1860.38
0441	938-8500	LS	TRAINING	1.000	25121.18	25121.18
0442	162-1300	EA	EROSION CONTROL CHECK DAM, TP - PROJECT	92.000	1500.00	138000.00
0447	163-0232	AC	TEMPORARY GRASSING	25.000	318.96	7974.06
0452	163-0240	TN	MULCH	795.000	263.80	209725.42
0457	163-0300	EA	CONSTRUCTION EXIT	24.000	1028.08	24674.03
0462	163-0501	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 1	3.000	502.32	1506.97
0467	163-0502	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 2	10.000	513.39	5133.91
0472	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	23.000	349.87	8047.04
0477	163-0504	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 4	125.000	119.32	14915.00
0482	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	11250.000	12.96	145867.28
0487	163-0521	EA	CONSTR AND REMOVE TEMP DITCH CHECKS	123.000	216.24	26597.52
0507	163-0530	LF	CONSTR AND REMOVE BALED STRW EROSION CHK	12250.000	2.96	36260.00
0512	163-0531	EA	CONSTR & REM SEDIMENT BASIN, TP 1, STA NO- PROJECT	2.000	6602.97	13205.95
0517	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	275.000	82.73	22751.62

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0522	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	21625.000	0.56	12322.14
0527	165-0020	LF	MAINT OF TEMP SILT FENCE, TP B	750.000	0.94	708.71
0532	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	68750.000	0.48	33213.81
0537	165-0040	EA	MAINT OF EROSION CTRL CHKDAMS/DI TCH CHKS	215.000	87.42	18795.30
0542	165-0050	LF	MAINT OF SILT RETENTION BARRIER	2000.000	2.14	4289.82
0547	165-0060	EA	MAINT OF TEMP SEDIMENT BASIN, STA NO -	2.000	982.61	1965.23
0552	165-0070	LF	MAINT OF BALED STRAW EROSION CHECK	6125.000	1.62	9922.50
0557	165-0085	EA	MAINT OF SILT CONTROL GATE, TP 1	3.000	142.60	427.82
0562	165-0086	EA	MAINT OF SILT CONTROL GATE, TP 2	10.000	139.11	1391.13
0567	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	23.000	62.80	1444.61
0572	165-0088	EA	MAINT OF SILT CONTROL GATE, TP 4	125.000	42.96	5370.00
0577	165-0101	EA	MAINT OF CONST EXIT	24.000	377.56	9061.47
0582	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	275.000	46.86	12888.67
0587	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53
0592	167-1500	MO	WATER QUALITY INSPECTIONS	27.000	699.33	18882.13
0597	170-2000	LF	STAKED SILT RETENTION BARRIER	2000.000	6.23	12461.84
0602	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	43250.000	1.56	67757.18
0607	171-0020	LF	TEMPORARY SILT FENCE, TYPE B	1500.000	1.21	1821.96
0612	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	137500.000	2.73	376627.63
0617	603-2012	SY	STN DUMPED RIP RAP, TP 1, 12"	41500.000	36.66	1521390.00
0622	603-7000	SY	PLASTIC FILTER FABRIC	41500.000	3.04	126429.34
0627	700-6910	AC	PERMANENT GRASSING	49.500	670.36	33182.86
0632	700-7000	TN	AGRICULTURAL LIME	115.000	40.21	4625.17
0637	700-7010	GL	LIQUID LIME	95.000	19.79	1880.78
0642	700-8000	TN	FERTILIZER MIXED GRADE	5.000	501.70	2508.52
0647	700-8100	LB	FERTILIZER NITROGEN CONTENT	1900.000	2.16	4106.28
0652	710-9000	SY	PERM SOIL REINFORCING MAT	31000.000	3.30	102523.82
0657	715-2200	SY	BITUM TRTD ROVING, WATERWAYS	21000.000	1.52	31940.58
0662	716-2000	SY	EROSION CONTROL MATS, SLOPES	121500.000	0.83	101606.81
0727	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 1	160.000	26.39	4223.56
0732	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 1	1784.000	41.72	74433.21
0737	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 1	2367.000	3.69	8748.98
0742	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 1	1.000	400436.00	400436.00
0747	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 1	1331.000	36.34	48369.06
0752	500-3002	CY	CL AA CONCRETE BRIDGE NO. 1	840.000	513.05	430966.47
0757	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 1	1036.000	91.07	94349.54
0762	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 1	2575.000	136.07	350389.42
0767	511-1000	LB	BAR REINF STEEL BRIDGE NO. 1	123458.000	0.60	74304.43
0772	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 1	1.000	106783.00	106783.00
0777	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 1	7620.000	42.70	325393.13
0782	522-1000	LS	SHORING BRIDGE NO. 1	1.000	125814.00	125814.00
0787	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 2	37.000	33.48	1239.09
0792	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 2	624.000	47.84	29856.30
0797	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 2	793.000	5.21	4134.87

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=====	=====	=====	=====	=====	=====	=====
0802	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 2	1.000	104250.00	104250.00
0807	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 2	204.000	46.26	9437.47
0812	500-3002	CY	CL AA CONCRETE BRIDGE NO. 2	143.000	568.79	81337.07
0817	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 2	1635.000	91.07	148901.05
0822	511-1000	LB	BAR REINF STEEL BRIDGE NO. 2	20985.000	0.70	14773.23
0827	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 2	1.000	27800.00	27800.00
0832	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 2	1386.000	47.73	66161.25
0837	522-1000	LS	SHORING BRIDGE NO. 2	1.000	44035.00	44035.00
0842	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 2	1.000	117674.00	117674.00
0847	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 7	64.000	30.63	1960.69
0852	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 7	1784.000	41.72	74433.21
0857	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 7	1356.000	4.40	5972.30
0862	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 7	1.000	201019.00	201019.00
0867	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 7	470.000	41.55	19528.65
0872	500-3002	CY	CL AA CONCRETE BRIDGE NO. 7	245.000	568.02	139165.82
0877	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 7	411.000	89.43	36758.65
0882	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 7	652.000	116.16	75741.52
0887	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE NO. 7	1286.000	139.96	179992.02
0892	511-1000	LB	BAR REINF STEEL BRIDGE NO. 7	36044.000	0.67	24189.13
0897	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 7	1.000	53605.00	53605.00
0902	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 7	2160.000	46.37	100160.82
0907	522-1000	LS	SHORING BRIDGE NO. 7	1.000	125814.00	125814.00
0912	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 8	66.000	30.48	2011.87
0917	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 8	803.000	46.29	37178.05
0922	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 8	1529.000	4.24	6484.58
0927	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 8	1.000	197716.00	197716.00
0932	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 8	403.000	42.38	17079.53
0937	500-3002	CY	CL AA CONCRETE BRIDGE NO. 8	262.000	630.36	165156.23
0942	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 8	491.000	89.43	43913.62
0947	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 8	1827.000	106.80	195129.96
0952	511-1000	LB	BAR REINF STEEL BRIDGE NO. 8	38552.000	0.66	25718.81
0957	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 8	1.000	52724.00	52724.00
0962	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 8	1971.000	46.64	91945.45
0967	522-1000	LS	SHORING BRIDGE NO. 8	1.000	56616.00	56616.00
0972	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 8	1.000	310230.00	310230.00
0977	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 14	91.000	45.52	4143.04

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0982	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 14	324.000	20.48	6637.38
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0987	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 14	5078.000	2.90	14762.20
0992	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 14	1.000	836141.00	836141.00
0997	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 14	2077.000	34.31	71277.55
1002	500-3002	CY	CL AA CONCRETE BRIDGE NO. 14	1537.000	568.79	874231.35
1007	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 14	1280.000	109.94	140734.31
1012	507-9031	LF	PSC BEAMS, AASHTO, BULB TEE, 63" BRIDGE NO. 14	917.000	156.10	143145.53
1017	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 14	6008.000	195.80	1176369.52
1022	511-1000	LB	BAR REINF STEEL BRIDGE NO. 14	245961.000	0.56	139277.88
1027	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 14	1.000	184443.00	184443.00
1032	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 14	7260.000	42.83	311002.57
1037	522-1000	LS	SHORING BRIDGE NO. 14	1.000	125814.00	125814.00
1042	540-1101	LS	REM OF EX BR, STA NO - BRIDGE NO. 14	1.000	1047000.00	1047000.00
1047	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 14	4606.000	37.23	171495.43
1052	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 14	4606.000	3.32	15296.25
1057	207-0203	CY	FOUND BK FILL MATL, TP II BRIDGE NO. 15	69.000	46.24	3190.72
1062	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 15	240.000	20.70	4968.35
1067	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 15	4470.000	3.02	13526.71
1072	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 15	1.000	761491.00	761491.00
1077	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 15	2012.000	34.45	69330.06
1082	500-3002	CY	CL AA CONCRETE BRIDGE NO. 15	1586.000	568.79	902102.10
1087	507-9003	LF	PSC BEAMS, AASHTO TP III, BR NO- BRIDGE NO. 15	674.000	115.85	78085.57
1092	507-9033	LF	PSC BEAMS, AASHTO, BULB TEE, 74" BRIDGE NO. 15	7048.000	195.80	1380002.06
1097	511-1000	LB	BAR REINF STEEL BRIDGE NO. 15	253711.000	0.56	143273.14
1102	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 15	1.000	167976.00	167976.00
1107	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 15	5460.000	43.64	238291.93
1112	522-1000	LS	SHORING BRIDGE NO. 15	1.000	125814.00	125814.00
1117	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24" BRIDGE NO. 15	4606.000	37.23	171495.43
1122	603-7000	SY	PLASTIC FILTER FABRIC BRIDGE NO. 15	4606.000	3.32	15296.25
1127	211-0300	CY	BR EXCAV, STREAM CROSSING BRIDGE NO. 21	104.000	21.31	2216.72
1132	441-0004	SY	CONC SLOPE PAV, 4 IN BRIDGE NO. 21	892.000	45.66	40736.55
1137	500-0100	SY	GROOVED CONCRETE BRIDGE NO. 21	1862.000	3.98	7422.14
1142	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 21	1.000	317207.00	317207.00
1147	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 21	838.000	38.57	32321.74
1152	500-3002	CY	CL AA CONCRETE BRIDGE NO. 21	468.000	568.93	266262.12
1157	507-9030	LF	PSC BEAMS, AASHTO, BULB TEE, 54" BRIDGE	3352.000	134.62	451262.70

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1162	511-1000	LB	NO. 21 BAR REINF STEEL BRIDGE NO. 21	68850.000	0.63	43634.38
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1167	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 21	1.000	84588.00	84588.00
1172	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 21	2760.000	45.63	125948.82
1177	522-1000	LS	SHORING BRIDGE NO. 21	1.000	125814.00	125814.00
1182	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 31	3204.000	16.21	51967.28
1187	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 31	1.000	470853.00	470853.00
1192	500-2100	LF	CONCRETE BARRIER BRIDGE NO. 31	255.000	44.95	11462.86
1197	500-3002	CY	CL AA CONCRETE BRIDGE NO. 31	5598.000	568.79	3184090.51
1202	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 31	10367.000	91.07	944132.85
1207	511-1000	LB	BAR REINF STEEL BRIDGE NO. 31	822999.000	0.50	418807.73
1212	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 31	1.000	125561.00	125561.00
1217	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 31	19454.000	40.16	781362.91
1222	522-1000	LS	SHORING BRIDGE NO. 31	1.000	138395.00	138395.00
1227	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 4	7693.000	50.00	384650.00
1232	621-6003	LF	CONC BARRIER, TP S-3 WALL NO. 17B	193.000	200.00	38600.00
1237	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 21	99199.000	50.00	4959950.00
1242	621-6003	LF	CONC BARRIER, TP S-3 WALL NO. 26	76.000	200.00	15200.00
1247	621-6002	LF	CONC BARRIER, TP S-2 WALL NO. 26	2198.000	100.00	219800.00
1252	621-6003	LF	CONC BARRIER, TP S-3 WALL NO. 30A	2308.000	200.00	461600.00
1257	621-6203	LF	CONC SIDE BARRIER, TP 2-SC WALL NO. 32	960.000	550.00	528000.00
1262	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 33	44346.000	50.00	2217300.00
1267	621-6210	LF	CONC SIDE BARRIER, TP 6-S WALL NO. 35	86.000	200.00	17200.00
1272	621-6210	LF	CONC SIDE BARRIER, TP 6-S WALL NO. 36	1266.000	200.00	253200.00
1277	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 39	25440.000	50.00	1272000.00
1282	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 40	3852.000	50.00	192600.00
1287	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 42	5866.000	50.00	293300.00
1292	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 48	358.000	50.00	17900.00
1297	621-6210	LF	CONC SIDE BARRIER, TP 6-S WALL NO. 49	317.000	200.00	63400.00
1302	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - WALL NO. 50	15175.000	50.00	758750.00

ITEM TOTAL						58776148.71
INFLATED ITEM TOTAL						58776148.71

TOTALS FOR JOB 11516 P5

ESTIMATED COST:						58776148.77
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CONTINGENCY PERCENT ( 0.0 ):	phase 5 cost estimate.txt	0.00
ESTIMATED TOTAL:		58776148.77
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phase 5 mitigation cost estimate.txt  
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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P5 MTG                      SPEC YEAR: 01  
DESCRIPTION: I-16/1-75 PHASE 5 MITIGATION COST ESTIMATE

ITEMS FOR JOB 11516 P5 MTG

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	624-0400		SF	SOUND BARRIER, TYPE- ADD' L COST FOR CONC	96200.000	21.00	2020200.00

ITEM TOTAL							2020200.00
INFLATED ITEM TOTAL							2020200.00

TOTALS FOR JOB 11516 P5 MTG

ESTIMATED COST:							2020200.00
CONTINGENCY PERCENT ( 0.0 ):							0.00
ESTIMATED TOTAL:							2020200.00

PROJ. NO.

PHASE 5 - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

DATE

11/10/2011

## INDEX (TYPE)

DATE

INDEX

REG. UNLEADED

Oct-11

\$ 3.258

DIESEL

Oct-11

\$ 3.769

LIQUID AC

Sep-11

\$ 563.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

418838.22

\$

418,838.22

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 900.80

Monthly Asphalt Cement Price month project let (APL)

\$ 563.00

Total Monthly Tonnage of asphalt cement (TMT)

1239.9

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	1101	5.0%	55.05
9.5 mm SP	0	5.0%	0
25 mm SP	4404	5.0%	220.2
19 mm SP	19293	5.0%	964.65
	<b>24798</b>		<b>1239.9</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 18,578.58

\$

18,578.58

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 900.80

Monthly Asphalt Cement Price month project let (APL)

\$ 563.00

Total Monthly Tonnage of asphalt cement (TMT)

54.99876731

Bitum Tack

Gals	gals/ton	tons
12805	232.8234	54.9987673

PROJ. NO.

PHASE 5 - PROJECT NO. TBD

CALL NO.

P.I. NO.

TBD

DATE

11/10/2011

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	900.80			
Monthly Asphalt Cement Price month project let (APL)				\$	563.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>437,416.80</b>
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# Preliminary Right of Way Cost Estimate

**Date:** February 20, 2009  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 5 **No. Parcels:** 13  
**Land:**

Commercial R/W:	365,852	s.f @ \$	2.50 /s.f. =	\$	914,630
Industrial R/W:	0	s.f @ \$	0.00 /s.f. =	\$	0
Residential R/W:	0	s.f @ \$	1.05 /s.f. =	\$	0
Agricultural R/W:	0	s.f @ \$	0.00 /s.f. =	\$	0
Commercial Esmt:	30,057	s.f @ \$	1.25 /s.f. =	\$	37,571
Industrial Esmt:	0	s.f @ \$	0.00 /s.f. =	\$	0
Residential Esmt:	1,119	s.f @ \$	0.55 /s.f. =	\$	615
Agricultural Esmt:	0	s.f @ \$	0.00 /s.f. =	\$	0
<b>TOTAL</b>				\$	<u>952,816</u>

**Improvements:** car dealership buildings, asphalt, etc. \$ 500,000

**Relocation:**  
 Commercial ( 1 ) @ \$25,000 /parcel = \$ 25,000  
 Residential ( 0 ) @ \$40,000 /parcel = \$ 0  
**TOTAL** \$ 25,000

**Damages:**  
 Proximity- \$ 0  
 Consequential- \$ 0  
 Cost To Cure- \$ 0  
**TOTAL** \$ 0

**SUB-TOTAL:** \$ 1,477,816

Net Cost		\$	1,477,816
Scheduling Contingency	55 %		812,799
Adm/Court Cost	60 %		1,374,369
<b>TOTAL</b>		\$	<u>3,664,984</u>

**Total Cost** **\$ 3,665,000**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 118,142 sf on 1 parcel owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 2/20/09.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

phase 6 cost estimate.txt  
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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P6 SPEC YEAR: 01  
DESCRIPTION: I-16 / I-75 PHASE 6

ITEMS FOR JOB 11516 P6

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PROJECT	1.000	2352000.00	2352000.00
0010	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	73914.48	73914.48
0020	207-0203		CY	FOUND BK FILL MATL, TP 11	160.000	51.02	8163.20
0025	210-0100		LS	GRADING COMPLETE - PROJECT	1.000	2955880.00	2955880.00
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	38100.000	15.56	592999.83
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2, INC BM&HL	13500.000	58.30	787140.72
0050	413-1000		GL	BITUM TACK COAT	8200.000	2.46	20183.81
0054	439-0056		SY	PLN PC CONC PVMT CL HES 12"THK	81700.000	62.76	5127862.92
0055	500-3101		CY	CLASS A CONCRETE	58.000	502.67	29154.89
0056	500-3800		CY	CL A CONC, INCL REINF STEEL	27.000	744.10	20090.83
0057	511-1000		LB	BAR REINF STEEL	7600.000	0.77	5853.22
0058	550-1180		LF	STM DR PIPE 18", H 1-10	1700.000	28.95	49218.23
0059	550-1182		LF	STM DR PIPE 18", H 15-20	87.000	36.57	3181.76
0060	550-1240		LF	STM DR PIPE 24", H 1-10	77.000	45.33	3491.08
0061	550-1300		LF	STM DR PIPE 30", H 1-10	39.000	50.69	1977.23
0062	550-1301		LF	STM DR PIPE 30", H 10-15	4.000	75.74	303.00
0063	550-1303		LF	STM DR PIPE 30", H 20-25	4.000	53.78	215.15
0064	550-1484		LF	STM DR PIPE 48", H 25-30	320.000	107.59	34431.63
0065	550-1488		LF	STM DR PIPE 48", H 50-60	420.000	383.14	160918.80
0066	550-4230		EA	FLARED END SECT 30 IN, ST DR	5.000	666.39	3331.95
0067	620-0100		LF	TEMP BARRIER, METHOD NO. 1	9300.000	22.63	210523.91
0068	621-4086		LF	CONCRETE SIDE BARRIER, TP 7WS	1300.000	52.80	68640.00
0069	621-6001		LF	CONC BARRIER, TP S-1	1700.000	119.39	202970.00
0070	621-6002		LF	CONC BARRIER, TP S-2	4800.000	79.72	382663.54
0071	621-6003		LF	CONC BARRIER, TP S-3	4500.000	195.06	877770.00
0072	621-6200		LF	CONC SIDE BARRIER, TP 2-S	390.000	174.80	68172.00
0073	624-0410		SF	SOUND BARRIER	90352.000	24.00	2168448.00
0088	634-1200		EA	RIGHT OF WAY MARKERS	13.000	113.10	1470.40
0089	641-1200		LF	GUARDRAIL, TP W	4800.000	14.98	71945.86
0090	668-2100		EA	DROP INLET, GP 1	31.000	1851.03	57382.06
0091	668-2110		LF	DROP INLET, GP 1, ADDL DEPTH	93.000	132.50	12322.52
0230	668-4300		EA	STORM SEW MANHOLE, TP 1	1.000	1753.33	1753.33
0231	500-3104		CY	CL A CONC, SIGNS	1.000	629.96	629.96
0232	610-6515		EA	REM HIGHWAY SIGN, STD	2.000	85.25	170.50
0233	610-6520		EA	REM HWY SIGN, SPCL ROADSIDE	2.000	442.17	884.34
0234	610-9310		LS	REM STR SUPPORT, TP - 1088+70 I-75 SB	1.000	26470.58	26470.58
0235	610-9310		LS	REM STR SUPPORT, TP - 1116+60 I-75 SB	1.000	26470.58	26470.58
0236	633-3500		EA	REMT UNMODY HWY SIGN, SP RDSIDE	2.000	500.00	1000.00
0237	636-1020		SF	HWY SGN, TP1MAT, REFL SH TP3	23.000	15.14	348.40
0238	636-1033		SF	HWY SIGNS, TP1MAT, REFL SH TP 9	27.000	22.15	598.26
0239	636-1041		SF	HWY SIGNS, TP 2MAT, REFL SH TP 9	36.000	36.93	1329.80

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0240	636-1077	SF	HWY SIGN, ALUM EXT PL, REFL SHT, TP 9	1500.000	24.37	36563.07
0241	636-2090	LF	GALV STEEL POSTS, TP 9	104.000	6.72	699.00
0242	636-3000	LB	GALV STEEL STR SHAPE POST	1500.000	4.94	7413.81
0243	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 1105+35 I-75 SB	1.000	67300.00	67300.00
0244	638-1001	LS	STR SUPPORT OVHD SIGN, TP I, STA 1131+75 I-75 SB	1.000	67300.00	67300.00
0245	638-1003	LS	STR SUPPORT OVHD, SIGN, TP I I STA 1111+00 I-75 SB	1.000	25600.00	25600.00
0252	654-1003	EA	RAISED PVMT MARKERS TP 3	300.000	4.83	1451.06
0253	657-1085	LF	PRF PL SD PVT MKG, 8", B/W, TP PB	3150.000	4.70	14822.51
0254	657-1104	LF	PRF PL SD PVMT MKG, 10", WH, TPPB	2250.000	7.11	16015.91
0255	657-3085	GLF	PRF PL SK PVMT MKG, 8", B/W, TPPB	2350.000	3.59	8438.97
0256	657-6085	LF	PRF PL SD PVMT MKG, 8", B/Y, TPPB	4200.000	4.59	19315.17
0260	163-0232	AC	TEMPORARY GRASSING	15.000	319.21	4788.28
0265	163-0240	TN	MULCH	735.000	263.80	193897.09
0270	163-0300	EA	CONSTRUCTION EXIT	25.000	1025.10	25627.55
0275	163-0503	EA	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	15.000	268.03	4020.49
0278	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	4500.000	13.16	59233.68
0289	163-0528	LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	70.000	4.07	285.43
0290	163-0531	EA	CONSTR & REM SEDIMENT BASIN, TP 1, STA NO- 0	1.000	6602.97	6602.97
0294	163-0531	EA	CONSTR & REM SEDIMENT BASIN, TP 1, STA NO- 0	1.000	6602.97	6602.97
0295	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	32.000	85.84	2747.01
0300	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	12000.000	0.62	7487.16
0305	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	65000.000	0.48	31571.15
0306	165-0041	LF	MAINT OF CHECK DAMS - ALL TYPES	40.000	1.82	72.94
0307	165-0050	LF	MAINT OF SILT RETENTION BARRIER	1000.000	2.67	2677.53
0308	165-0060	EA	MAINT OF TEMP SEDIMENT BASIN, STA NO -	1.000	1172.12	1172.12
0314	165-0060	EA	MAINT OF TEMP SEDIMENT BASIN, STA NO -	1.000	1172.12	1172.12
0315	165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	15.000	65.53	983.06
0320	165-0101	EA	MAINT OF CONST EXIT	2.000	389.79	779.60
0325	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	32.000	49.98	1599.41
0330	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000	228.76	457.53
0335	167-1500	MO	WATER QUALITY INSPECTIONS	24.000	699.33	16784.12
0339	170-2000	LF	STAKED SILT RETENTION BARRIER	1000.000	6.23	6230.92
0340	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	24000.000	1.64	39401.76
0345	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	130000.000	2.74	356584.80
0348	603-2012	SY	STN DUMPED RIP RAP, TP 1, 12"	28000.000	41.29	1156120.00
0349	603-7000	SY	PLASTIC FILTER FABRIC	28000.000	3.09	86628.92
0350	700-6910	AC	PERMANENT GRASSING	42.000	673.36	28281.42
0355	700-7000	TN	AGRICULTURAL LIME	90.000	40.48	3643.24
0360	700-8000	TN	FERTILIZER MIXED GRADE	3.000	508.83	1526.50
0365	700-8100	LB	FERTILIZER NITROGEN CONTENT	1500.000	2.19	3292.02
0369	710-9000	SY	PERM SOIL REINFORCING MAT	19000.000	3.41	64848.33
0370	715-2200	SY	BITUM TRTD ROVING, WATERWAYS	10000.000	1.57	15704.10
0375	716-2000	SY	EROSION CONTROL MATS, SLOPES	120000.000	0.83	100444.80

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0385	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 21	4663.000	30.33	141461.71
0390	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 21	1100.000	33.95	37351.55
0400	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 21	1100.000	42.14	46364.11
0405	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - 21	1317.000	44.43	58524.82
0410	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 21	611.000	172.89	105641.83
0415	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 22	11532.000	28.18	325016.39
0420	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 22	5852.000	28.44	166460.49
0425	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 22	1202.000	172.89	207825.66
0430	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 23	6000.000	29.72	178329.36
0435	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 23	5030.000	28.90	145391.65
0440	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 23	2985.000	42.14	125815.33
0487	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - 23	1136.000	44.43	50481.55
0488	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 23	685.000	172.89	118436.42
0489	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 25	12050.000	28.08	338404.49
0490	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 25	1111.000	33.92	37685.31
0491	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 25	1315.000	172.89	227363.34
0492	627-1000	SF	MSE WALL FACE, 0 - 10 FT HT, WALL NO - 33	4925.000	30.20	148747.41
0493	627-1010	SF	MSE WALL FACE, 10 - 20 FT HT, WALL NO - 33	4194.000	29.46	123584.35
0494	627-1020	SF	MSE WALL FACE, 20 - 30 FT HT, WALL NO - 33	3574.000	42.14	150641.21
0495	627-1030	SF	MSE WALL FACE, GTR 30 FT HT, WALL NO - 33	871.000	44.43	38705.48
0496	627-1160	LF	TRAFFIC BARRIER H, WALL NO - 33	500.000	172.89	86449.94
0497	211-0200	CY	BR EXCAV, GRADE SEPARATION BRIDGE NO. 31	2622.000	16.75	43935.81
0498	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - BRIDGE NO. 31	1.000	385243.00	385243.00
0499	500-2110	LF	CONCRETE PARAPET, SPCL DES BRIDGE NO. 31	209.000	97.41	20360.31
0500	500-3002	CY	CL AA CONCRETE BRIDGE NO. 31	4581.000	568.79	2605630.33
0501	507-9002	LF	PSC BEAMS, AASHTO TP II, BR NO- BRIDGE NO. 31	8483.000	91.07	772555.12
0502	511-1000	LB	BAR REINF STEEL BRIDGE NO. 31	673362.000	0.51	348801.52
0503	511-3000	LS	SUPERSTR REINF STEEL, BR NO - BRIDGE NO. 31	1.000	102731.00	102731.00
0504	520-1147	LF	PIL-IN-PL, STEEL H, HP 14 X 73 BRIDGE NO. 31	15916.000	40.69	647704.01
0505	522-1000	LS	SHORING BRIDGE NO. 31	1.000	113233.00	113233.00
ITEM TOTAL						26807341.72

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INFLATED ITEM TOTAL	26807341.72
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TOTALS FOR JOB 11516 P6

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ESTIMATED COST:	26807341.79
CONTINGENCY PERCENT ( 0.0 ):	0.00
ESTIMATED TOTAL:	26807341.79

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JOB ESTIMATE REPORT

JOB NUMBER : 11516 P6 MTG                      SPEC YEAR: 01  
DESCRIPTION: I-16/I-75 PHASE 6 MITIGATION COST ESTIMATE

ITEMS FOR JOB 11516 P6 MTG

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	624-0400		SF	SOUND BARRIER, TYPE- ADD' L COST FOR CONC	90352.000	21.00	1897392.00

ITEM TOTAL							1897392.00
INFLATED ITEM TOTAL							1897392.00

TOTALS FOR JOB 11516 P6 MTG

ESTIMATED COST:							1897392.00
CONTINGENCY PERCENT ( 0.0 ):							0.00
ESTIMATED TOTAL:							1897392.00

PROJ. NO.

PHASE 6 - PROJECT NO. NHIMO-0075-02(177)

CALL NO.

P.I. NO.

311400

DATE

11/9/2011

## INDEX (TYPE)

DATE INDEX

REG. UNLEADED

Oct-11 \$ 3.258

DIESEL

Oct-11 \$ 3.769

LIQUID AC

Sep-11 \$ 563.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

## LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

## Asphalt

Price Adjustment (PA)

228015

\$

228,015.00

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

900.80

Monthly Asphalt Cement Price month project let (APL)

\$

563.00

Total Monthly Tonnage of asphalt cement (TMT)

675

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	0	5.0%	0
9.5 mm SP	0	5.0%	0
25 mm SP	0	5.0%	0
19 mm SP	13500	5.0%	675
	<b>13500</b>		<b>675</b>

## BITUMINOUS TACK COAT

Price Adjustment (PA)

\$

11,897.26

\$

11,897.26

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$

900.80

Monthly Asphalt Cement Price month project let (APL)

\$

563.00

Total Monthly Tonnage of asphalt cement (TMT)

35.21982756

Bitum Tack

Gals	gals/ton	tons
8200	232.8234	35.2198276

PROJ. NO.

PHASE 6 - PROJECT NO. NHIMO-0075-02(177)

CALL NO.

P.I. NO.

311400

DATE

11/9/2011

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	900.80			
Monthly Asphalt Cement Price month project let (APL)				\$	563.00			
Total Monthly Tonnage of asphalt cement (TMT)					0			

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>	<b>\$</b>	<b>239,912.26</b>
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# Preliminary Right of Way Cost Estimate

**Date:** December 30, 2008  
**Projects:** NHIM0-0016-01(092) NH000-0016-01(104) **P.I. Numbers:** 311000  
 NHIM0-0016-01(131) NHIM0-0075-02(177) 311005  
**Existing/Required R/W:** Varies/Varies 311410  
**Project Termini:** 311400  
**Project Description:** Phase 6 **No. Parcels:** 2  
**Land:**

Commercial R/W:	0 s.f @ \$ 2.50 /s.f. =	\$ 0	
Industrial R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential R/W:	0 s.f @ \$ 1.05 /s.f. =	\$ 0	
Agricultural R/W:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Commercial Esmt:	0 s.f @ \$ 1.25 /s.f. =	\$ 0	
Industrial Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
Residential Esmt:	0 s.f @ \$ 0.55 /s.f. =	\$ 0	
Agricultural Esmt:	0 s.f @ \$ 0.00 /s.f. =	\$ 0	
<b>TOTAL</b>			<b>\$ 0</b>

**Improvements:** none **\$ 0**

**Relocation:**

Commercial ( 0 ) @ \$25,000 /parcel =	\$ 0	
Residential ( 0 ) @ \$40,000 /parcel =	\$ 0	
<b>TOTAL</b>		<b>\$ 0</b>

**Damages:**

Proximity-	\$ 0	
Consequential-	\$ 0	
Cost To Cure-	\$ 0	
<b>TOTAL</b>		<b>\$ 0</b>

**SUB-TOTAL:** **\$ 0**

Net Cost		\$ 0
Scheduling Contingency 55 %		0
Adm/Court Cost 60 %		0
<b>TOTAL</b>		<b>\$ 0</b>

**Total Cost \$ 0**

**Prepared By :** Moreland Altobelli Associates, Inc. **Reviewed/Approved :** Howard P. Copeland  
 R/W Administrator

NOTE: This estimate assumes a total land donation of 6,697 sf on 2 parcels owned by the city, county, and/or state.

NOTE: This update is based on estimate by consultant dated 12/30/08.

NOTE: Accuracy of estimate is the sole responsibility of the Preparer.

NOTE: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

Revised Project Concept Report

Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410

County: Bibb County

## **ATTACHMENT #4**

### **INTERIM TRAFFIC ANALYSIS FOR PHASE 1 CONSTRUCTION**

(Note: This attachment has been included to provide additional traffic data for the interim condition following construction of Phase 1. Please see the approved Interchange Modification Report for the comprehensive traffic analysis)

# **TRAFFIC EVALUATION OF PHASE 1**

## **I-16/I-75 Widening and Interchange Modification Projects**

**Georgia Department of Transportation**

**Project Numbers:**

**NHIM0-0016-01 (092)      P.I. Number 311000-Phase 1**

NHIM0-0016-01 (131)      P.I. Number 311005

NHIM0-0075-02 (177)      P.I. Number 311400

NH000-0016-01 (104)      P.I. Number 311410

*Prepared for:*

*Georgia Department of Transportation*

*and*

*Federal Highway Administration*

*Prepared by:*

*Moreland Altobelli Associates Inc.*

## **1.0 INTRODUCTION**

This report documents the traffic analysis conducted for Phase 1 of a group of projects consisting of the reconstruction and improvement of the interchanges at I-16/I-75, I-16/Spring Street, I-16/Second Street, and I-16/Coliseum Drive within the City of Macon, in Bibb County, Georgia.

The proposed improvements of I-16 and I-75 interchanges would consist of redesign, widening, and new construction for nearly 5 miles of interstate, including 22 roadway bridges, approximately 10 retaining walls, a pedestrian bridge, and a railroad tunnel. Due to the magnitude of the work needed to complete the reconstruction and upgrade of the aforementioned interchanges, the project has been divided into the following four Georgia Department of Transportation (GDOT) projects:

### NHIM0-0016-01(092), P.I. 311000 – Improvements along I-16 from I-75 to Coliseum Drive

This project includes reconstructing the I-16 interchanges with Spring Street and Second Street, improving I-16 between I-75 and Coliseum Drive, and adding eastbound and westbound collector-distributor roads along I-16 between I-75 and Coliseum Drive.

### NHIM0-0016-01(131), P.I. 311005 – I-16/Coliseum Drive Interchange Improvements

This project includes reconstructing the I-16 interchange with Coliseum Drive, improving I-16 between Second Street and Walnut Creek, and widening Coliseum Drive from Riverside Drive to the second Macon Centreplex entrance, north of I-16.

### NHIM0-0075-02(177), P.I. 311400 – I-75 Improvements from Pierce Avenue to I-16

This project includes widening and improving I-75 between Pierce Avenue and the I-16/I-75 interchange.

### NH000-0016-01(104), P.I. 311410 – I-16/I-75 Widening and Interchange Modification

This project consists of reconstructing the I-16/I-75 interchange and improvements to I-75 south of the interchange to the Hardeman Avenue Bridge, including the construction of a southbound collector-distributor road along I-75.

These projects are all inter-related in meeting the proposed need and purpose of improving operational efficiency and safety. However, funding of these projects together has become unachievable because of the limitation of funds allocated to the individual Congressional Districts of the State of Georgia. Therefore, while the need and purpose remains the same, further division of the projects is necessary to meet the available funding sources. This report is focused on the proposed Phase 1, which is described below.

## **1.1 Proposed Project Description – Phase 1**

Phase 1 would consist of improvements along I-16 from I-75 to Coliseum Drive, which would be defined under project NHIM0-0016-01 (092), P.I. Number 31100. However, it is important to note that Phase 1 is only a portion of the proposed project under P.I. Number 311100.

Phase 1 would consist of the following construction items:

- Construction of I-16 eastbound collector-distributor (CD) road between I-75 and Second Street, including a detour/pedestrian bridge over the Ocmulgee River, portions of a viaduct bridge, and an eastbound CD bridge over Spring Street.
- Reconstruction of a permanent eastbound ramp to Spring Street. The permanent ramp will have a four-lane approach to the intersection of Spring Street to provide double left-turn and right-turn lanes.
- Overlaying/Restriping sections of I-16 eastbound between I-75 and Coliseum Drive.
- Widening I-16 eastbound exit ramp to Coliseum Drive from two lanes to four lanes and reconfigure intersection at Coliseum Dr. to accommodate double left-turn and right-turn lanes from the exit ramp.
- Construct the ultimate pavement width of Coliseum Drive/MLK Jr. Blvd which includes a permanent bridge over the Ocmulgee River. Construct temporary lane configurations and median locations to accommodate the Phase 1 ramp intersections.
- Close the I-16 westbound loop ramp at the Spring Street Interchange and add a left turn lane from northbound Spring Street to I-16 westbound.
- Overlay Spring Street from the bridge over the Ocmulgee River to Baconsfield Drive.

Figure 1 shows the improvements proposed in Phase 1.

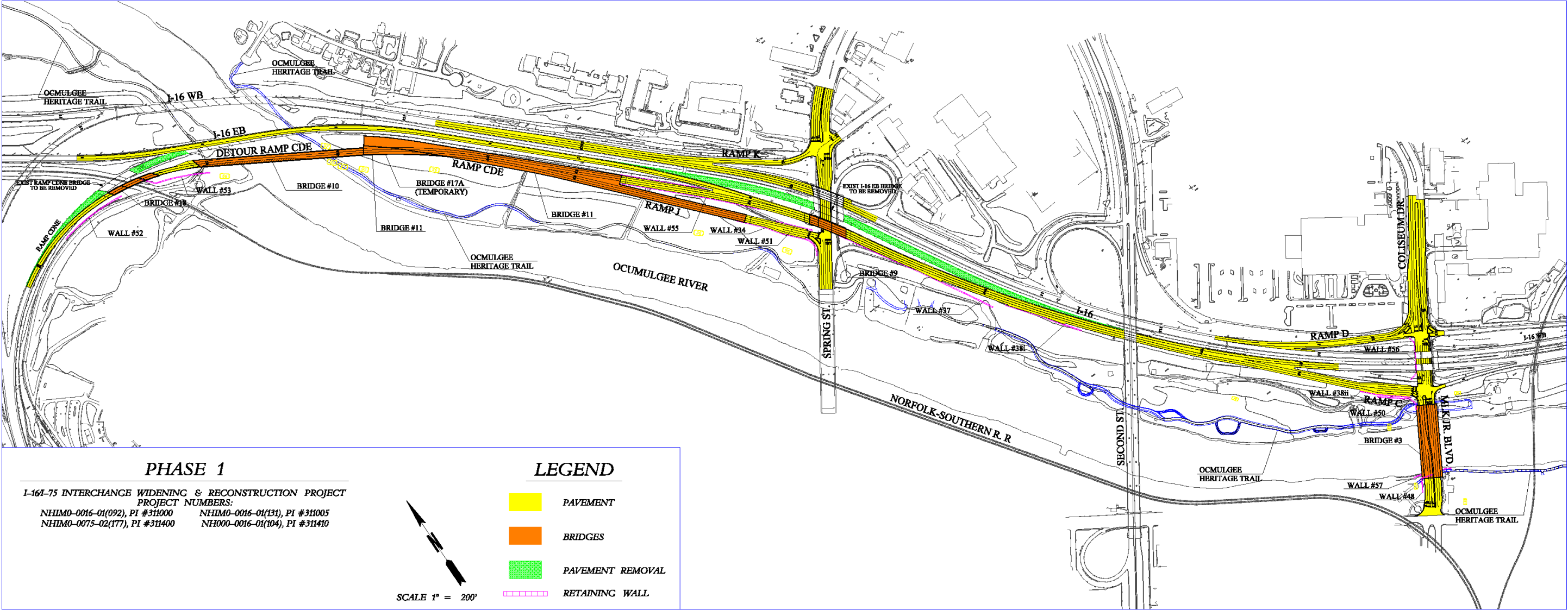
## **1.2 Need and Purpose for the Project**

The primary need of the project is to address and correct the operational and safety concerns that currently exist in the project corridor along I-75 and I-16. One of the major problems within the corridor is the close proximity of interchanges on I-16 through downtown Macon in an area where traffic frequently enters and exits the freeway; this poses a weaving and traffic congestion problem that contributes to the frequent occurrence of crashes. Presently, the Second Street interchange is only 1,800 feet from the Spring Street interchange and the Coliseum Drive Interchange is only 1,700 feet from the Second Street interchange. The existing lane configurations and limited section lengths between these closely spaced interchanges contribute to the undesirable weaving movements on I-16 between I-75 and Coliseum Drive. Traffic flow and movements to and from downtown Macon are further impacted by the partial interchanges on I-16 located at Second Street and Spring Street and the limited turning movement storage on the surface streets within the interchanges. This limited turning movement storage also creates traffic congestion and contributes to deficient operations on the surface streets beyond exit and entrance ramps. A project to modify the existing interchanges is necessary to improve operations within this corridor and to separate traffic movements that currently contribute to the identified weaving. The four interchanges within the project limits are generally not reflective of current highway design standards.

In addition to the interchange problems along I-16, another concern within the project corridor is the lack of sufficient sight distance for drivers on I-75 southbound approaching the split to I-16. The lack of adequate sight distance occurs as a result of the existing horizontal and vertical geometry of I-75 to the north of the interchange. Currently, one lane is provided for I-16 eastbound traffic, while two lanes continue through as I-75 southbound. The exit lane for eastbound I-16 is developed abruptly on the outside of a curve on the crest of a hill on I-75; consequently, there is little driver decision time to enter



Figure 1: Phase 1 Construction Project



the appropriate lane to proceed eastbound or southbound. This lack of sufficient decision time and sight distance results in driver confusion and unsafe weaving movements on this portion of I-75 has contributed to the historically high crash rates for this section of freeway. Attempts to eliminate this problem with improved signage have not been successful. This deficiency has been identified and consequently, a main purpose of this project is to address this operational deficiency.

The purpose of the proposed project is to improve the operational efficiency and safety of the I-16/I-75, I-16/Spring Street, I-16/Second Street, and I-16/Coliseum Drive interchanges by adding capacity to both I-75 and I-16, improving the existing interchanges, and by introducing a collector-distributor (CD) road system. The CD roads would be constructed along the eastbound and westbound lanes of I-16, as well as along the northbound and southbound lanes of I-75. These CD roads would separate the local and through traffic reducing the difficult weaving maneuvers created by the close proximity of the interchanges.

### **1.3 Crash Data**

Six years of crash data (2001 to 2006) was obtained from the Georgia Department of Transportation for the overall project. A summary of the crash data is illustrated in Figure 2: Crash Data Diagram. This summary comprises the crash data for the entire project area which is larger than the Phase I construction zone. This is necessary to accurately calculate collision rates. A breakdown of collisions types along the roadways included in Phase I construction is presented under Phase I Construction Area Collisions.

#### **Overall Project Area Collisions**

From 2001 through 2006, there were 2,788 crashes on the mainline of the two interstates within the project area (see Table 10, Crash, Injury, and Fatality Rates for I-16/I-75). As a result of these crashes, 1,231 injuries and 3 fatalities was recorded in the proposed project area. In 2006, the most recent year for crash data tabulation, there were 436 crashes on the combined I-75 and I-16 interstates within the project area. For 2006, the crash rate on the portions of I-16 and I-75 to be reconstructed was approximately 1.63 times the statewide rate for comparable interstates.

**Table 1: Crash, Injury, and Fatality Rates for I-16/I-75**

Year	Total No.	I-16 Crash Rate	Statewide Rate	Total No.	I-16 Injury Rate	Statewide Rate	Total No.	I-16 Fatality Rate	Statewide Rate
2001	255	574	201	160	360	51	1	2	0.81
2002	280	654	204	152	355	49	0	0	0.54
2003	264	718	200	125	340	48	1	3	0.71
2004	247	591	190	112	268	44	0	0	0.59
2005	250	480	206	93	179	49	0	0	0.77
2006	215	409	200	87	165	46	0	0	0.73
Year	Total No.	I-75 Crash Rate	Statewide Rate	Total No.	I-75 Injury Rate	Statewide Rate	Total No.	I-75 Fatality Rate	Statewide Rate
2001	246	269	201	115	125	51	1	1	0.81
2002	237	253	204	83	89	49	0	0	0.54
2003	244	254	200	84	87	48	0	0	0.71
2004	144	155	190	54	58	44	0	0	0.59
2005	185	209	206	85	96	49	0	0	0.77
2006	221	247	200	81	90	46	0	0	0.73

*All Rates are crashes, injuries, or fatalities per 100 million travel miles.*

*Source: Georgia Department of Public Safety, Crash Reporting Unit.*

In 2006, there were 168 injuries resulting from traffic crashes on the combined I-75 and I-16 interstates in the project area. In 2006, the injury rate on the portions of I-16 and I-75 to be reconstructed was 2.76 times higher than the statewide rate for comparable interstates.

The combined crash data for the proposed reconstruction of the I-16/I-75 interchange and three additional interchanges indicates that both crashes and injuries exceed the statewide rate on these two urban interstates. One fatality occurred in 2003 and contributed to a fatality rate of three (3) fatalities per 100 million vehicle miles of travel. Two other fatalities occurred in 2001 on both I-75 and I-16 and were computed at the rate of one (1) and two (2) fatalities per 100 million vehicle miles, respectively. The statewide rate for fatalities for comparable interstates in 2003 was 0.71 and 0.81 in 2001. A separate evaluation of the crashes on these two interstates indicates distinctive patterns of crashes indicating different causes for the high number of crashes on each of the freeways. This evaluation is presented in the paragraphs below.

### **Phase I Construction Area Collisions**

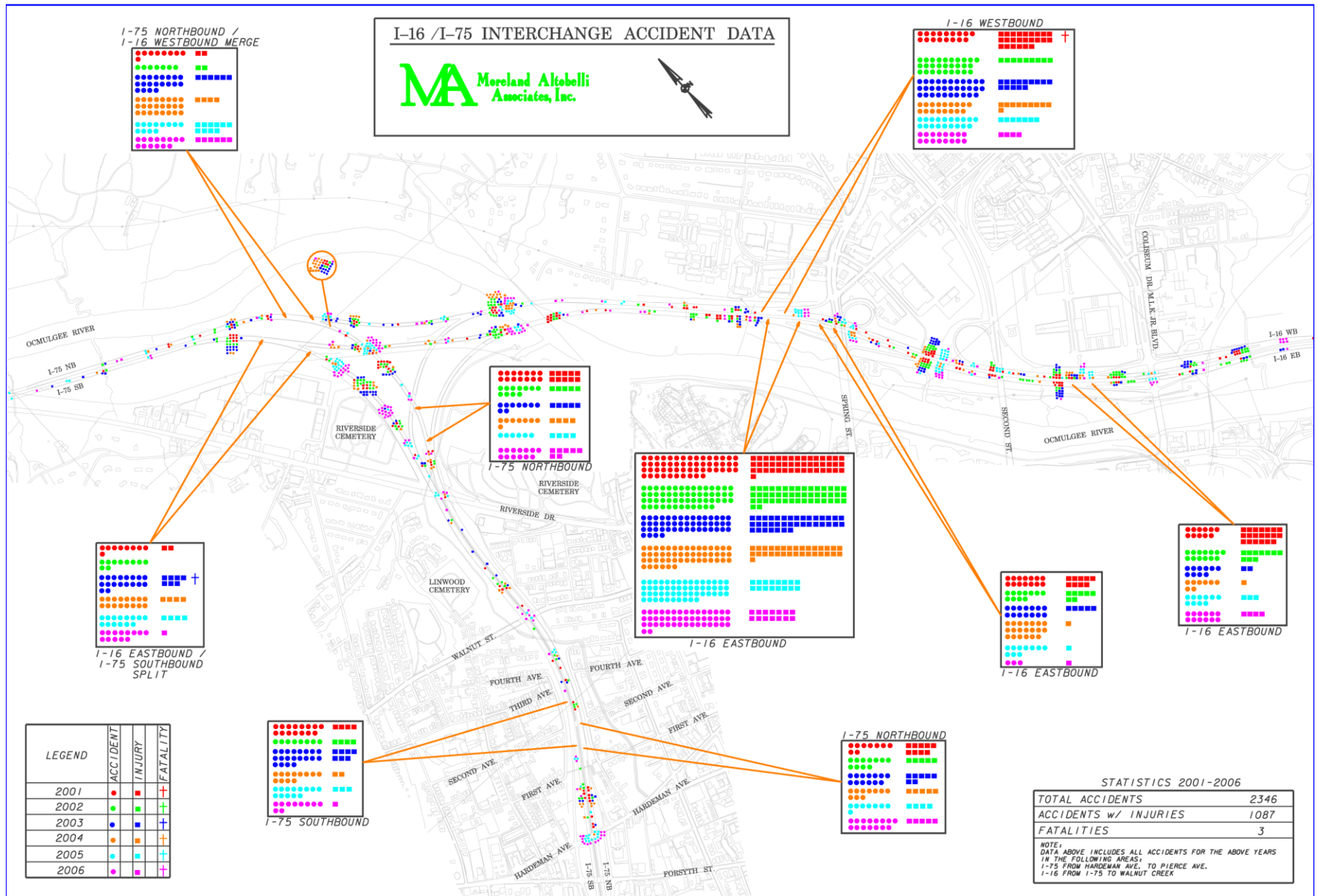
The 2006 crash data on the I-16 portion of the project indicates that 50 percent of these crashes were rear-end collisions. This high number of rear-end collisions coupled with the high number of injuries as a result of these crashes indicates that the traffic congestion on I-16 in downtown Macon results in a high number of moving vehicles crashing into decelerating or stopped vehicles. These types of crashes are common for vehicles exiting the I-16 queue onto the mainline of the interstate. This situation can occur suddenly causing rear-end collisions because driver decision time is short and the slower or stopped traffic is unanticipated. The crash data supports the need to separate local traffic destined for the downtown Macon exits from through traffic on I-16. Through traffic would then encounter less

decelerating or stationary traffic on the mainline of I-16. Sideswipe/angle collisions accounted for 30 percent of all crashes on I-16. This crash data is indicative of problems with weaving, sight distances, and short driver decision time. An example would be the merge of westbound I-16 with southbound I-75. Driver decision time and weaving opportunities are inadequate for drivers exiting on Hardeman Avenue or Forsyth Street. The proposed improvements would address these existing conditions. A summary of the crash data is illustrated on Figure 2: I-16 and I-75 Crash Data Diagram. This diagram shows the location that the crashes are occurring on the I-75 and I-16 mainlines. The section of I-16 that has the most crashes for all six years is between I-75 and the Spring Street Interchange. Most of the crashes are at the gore point, which is the final decision point between exiting to Spring Street and continuing on I-16 eastbound. The weaving section on I-16 eastbound between I-75 and Spring Street is classified as a “Type C” weaving movement, which is a weaving section that requires two vehicular lane changes to successfully complete the weaving maneuver. As shown in Figure 9: I-16 and I-75 Crash Data Diagram, crashes can be directly attributed to the failure to be able to negotiate lane changes in this weaving section.

The section of I-16 that has the second highest number of crashes is the merge point between I-16 westbound mainline and the Spring Street on-ramps. Currently, the loop on-ramp from Spring Street joins the westbound mainline with a parallel acceleration lane that abruptly ends with a short taper. The tapered end of the lane is hidden from sight by the vertical crest of the I-16 bridge over Spring Street. At this point, drivers have very little decision time to merge onto I-16. Additionally, this merge point is closely followed by the two-lane on-ramp merge from southbound Spring Street. The two-lane on-ramp merges the left lane with I-16 instead of the right lane of the two-lane entrance. Therefore motorists in the left lane are forced to merge with I-16 or merge into the right lane. This merge does not give drivers enough decision time or lane-changing opportunities and frequently results in sideswipe crashes.

It is anticipated that the operational efficiency improvements proposed for the I-16/I-75 interchange as well as improvements to other interchanges in the project area would create safer facilities for the motoring public. The increase in operational efficiency on both I-16 and I-75 would allow an improved LOS with less congestion, reduced driver stress, improved sight distances, and reduced weaving movements/conflict points, which should result in fewer crashes.

Figure 2: Crash Data Diagram



## 1.4 Traffic Operational Deficiencies

As previously described in the Need and Purpose, there are existing sections of the interstate that have poor levels of service, undesirable weaving sections and vertical and horizontal alignments that create inadequate decision time for motorists. The section of I-16 eastbound from I-75 to Coliseum Drive is among the worst freeway sections of in terms of crashes and injuries.

### Weaving Sections

There are two existing weaving segments on I-16 eastbound between I-75 and Coliseum Drive. A weaving section is defined in the *Highway Capacity Manual* (HCM) under three geometric configurations. The segment of I-16 eastbound between I-75 on-ramp and Spring Street off-ramp has been identified and analyzed as a type “C” weave area. A geometric configuration of a type “C” weave requires two vehicular lane changes to successfully complete the weaving maneuver. According to HCM, if the length of the weaving section exceeds 2,500 feet, it cannot be analyzed as a weave. The I-16 eastbound segment between I-75 and Springs Street is 1,900 feet; currently traffic queues from the Spring Street ramp intersection reduces the weaving length to 800 feet. This section was therefore analyzed using the 800-foot length.

The segment of I-16 eastbound between Spring Street on-ramp and the Coliseum Drive off-ramp has been identified and analyzed as type “A” weaving area, consisting of an on-ramp closely followed by an off-ramp where the two are joined by an auxiliary lane. The geometric configuration of a type “A” weave must require one vehicular lane change to successfully complete the weaving maneuver.

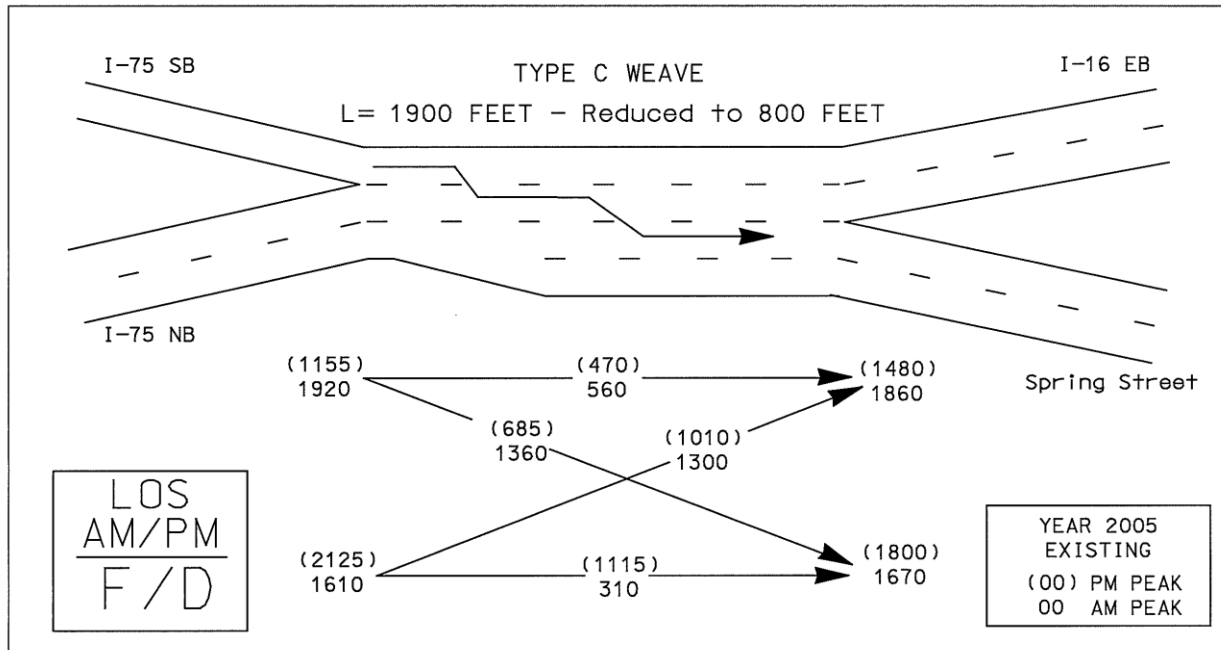
The results of the weave analysis are shown in Table 1. The two weaving segments for the existing condition are shown in Figures 3 and 4.

Table 1: Year 2005 Existing Weaving Area LOS Analysis Results							
Freeway	Weaving Area Limits (From/To)	Type	Dir.	N*	Length	AM	PM
I-16	I-75 on-ramp to Spring Street off-ramp	C	EB	3	800	F	D
	Spring Street on-ramp to Coliseum Drive off-ramp	A	EB	3	1,000	C	B

\* Indicates the number of lanes for that particular segment.

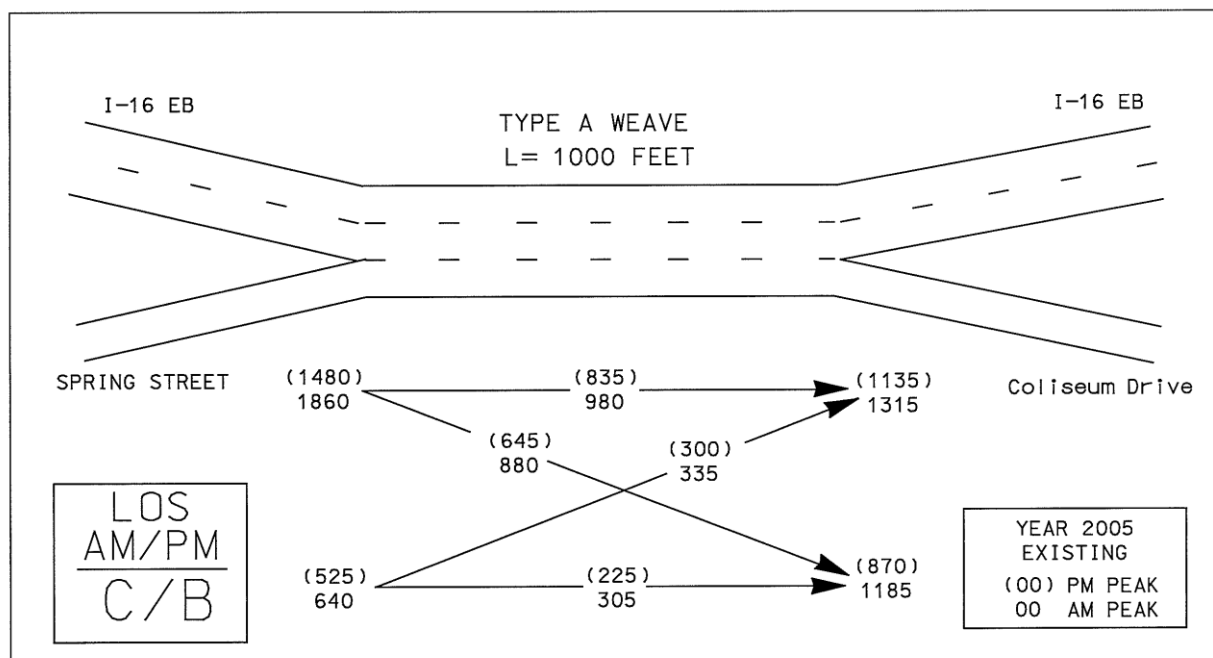
The segment of I-16 eastbound between I-75 on-ramp to Spring Street off-ramp would operate at a LOS F and LOS D during the AM and PM peak hours, respectively. The segment of I-16 eastbound between the Spring Street on-ramp and the Coliseum Drive off-ramp was determined to operate at LOS C for the AM peak hour and LOS B for the PM peak hours.

**Figure 3 – Weaving Diagram  
I-16 Eastbound between I-75 and Spring Street**



The traffic congestion on the Spring Street ramp and the failing level service of the weave on I-16 eastbound between I-75 and Spring Street contribute to the high number of vehicular crashes on I-16 in this area.

**Figure 4 – Weaving Diagram  
I-16 Eastbound between Spring Street and Coliseum Drive**



### Levels of Service of I-16 and Ramp Junctions

Existing freeway segment analysis was conducted for one-way freeway segments of I-16 proposed for improvement under Phase 1 Construction using year 2005 traffic volumes and lane configurations. The level of service results with the associated direction and number of lanes for each segment are shown in Table 2.

<b>Table 2: Year 2005 Freeway Segment LOS Analysis Results</b>				
<b>Freeway Segments (From/To)</b>	<b>Dir.</b>	<b>No. of Lanes</b>	<b>AM (LOS)</b>	<b>PM (LOS)</b>
I-16 from I-75 to Spring Street	EB	4	B	B
I-16 from Spring Street to Second Street	EB	3	B	A
I-16 from Second Street to Coliseum Drive	EB	3	B	A
I-16 east of Coliseum Drive	EB	2	B	B

Under the 2005 existing condition, the I-16 freeway segments that are proposed for improvement in Phase 1 are shown in Table 2 as operating at acceptable levels of service. However, the entire freeway network was analyzed using a TRAF-CORSIM network simulation model. The simulation showed that I-16 east between I-75 and Spring Street would operate at a failing level of service during the AM peak hour. The lack of capacity at the ramp intersection at Spring Street creates traffic queues that impede operations upstream on I-16.

Ramp junction analysis was performed for all ramp junctions under the year 2005 conditions. Results of all the ramp junction analysis are shown in Table 3.

<b>Table 3: Year 2005 Ramp Junction LOS Analysis Results</b>		
<b>Ramp Junctions</b>	<b>AM (LOS)</b>	<b>PM (LOS)</b>
I-16 eastbound diverge to Spring Street	B	B
Spring Street merge with I-16 eastbound	B	B
I-16 eastbound diverge to Coliseum Drive	B	B
Coliseum Drive merge with I-16 eastbound	B	B
I-16 eastbound merge with I-75 northbound	C	B

The ramp junctions for the Phase 1 section of I-16 are all operating at acceptable levels of service similar to the freeway segments analyzed.

### Intersection Levels of Service

Intersection capacity analysis was conducted at five existing intersections that are impacted by Phase 1. The AM and PM peak hour levels of service were determined using *Highway Capacity Software* (HCS). The results of this analysis are shown below in Table 4.



<b>Table 4: Year 2005 Existing Intersection LOS Analysis Results</b>		
<b>Intersection</b>	<b>AM Peak</b>	<b>PM Peak</b>
	<b>LOS (delay)</b>	<b>LOS (delay)</b>
Spring Street @ I-16 westbound on-ramp/ Emery Hwy	F (120.9)	B (19.3)
Spring Street @ I-16 eastbound off-ramp	C (31.4)	D (36.7)
Coliseum Drive @ I-16 westbound off-ramp*	F (124.5)	F (117.8)
Coliseum Drive @ I-16 eastbound off-ramp	D (39.8)	F (197.1)
Coliseum Drive @ Riverside Drive	B (16.8)	C (23.0)

\* Unsignalized analysis

For the existing year condition, three out of the five intersections operate below LOS D during either the AM or PM peak hour. The intersection of Spring Street and the I-16 westbound on-ramp/Emery Hwy operates at LOS F during the AM peak hour and the intersection of Coliseum Drive and the I-16 eastbound off-ramp operates at LOS F during the PM peak hour. Also, the unsignalized intersection of Coliseum Drive at I-16 westbound off-ramp operates at LOS F for both the AM and PM peak hours.

## **2.0 PHASE 1 TRAFFIC ANALYSIS**

Phase 1 is proposed to be designed, funded and constructed by the year 2014. Therefore, the year 2014 traffic was determined from the projected no-build 2012 traffic that was already calculated from an approved traffic methodology. The traffic methodology took into consideration 24-hour recorded machine counts collected on all mainlines, ramps, and cross streets within the project area. Manual peak period turning movement counts were conducted at all ramp intersections with cross streets along with selected major intersections. Regression analysis was conducted with all of the 24-hour historical counts from 1984 to 1999 to develop growth factors for the study area. The growth factors were then compared to the traffic volumes from the Macon Area Transportation Study to develop acceptable growth factors.

Future year (2014) ADT and AM/PM peak volumes for the study area are provided in the attachments. Future year (2014) freeway and surface street operations within the study area roadway network were analyzed according to the latest version of the Highway Capacity Software and TRAF-CORSIM computer simulation program. Future traffic conditions were analyzed for the 2014 Build and No-Build conditions. The Build condition consists of the Preferred Concept (Phase 1) and its related transportation improvements. Under the No-Build condition, no transportation improvements would be done to the existing roadway network

## 2.1 Weaving Areas

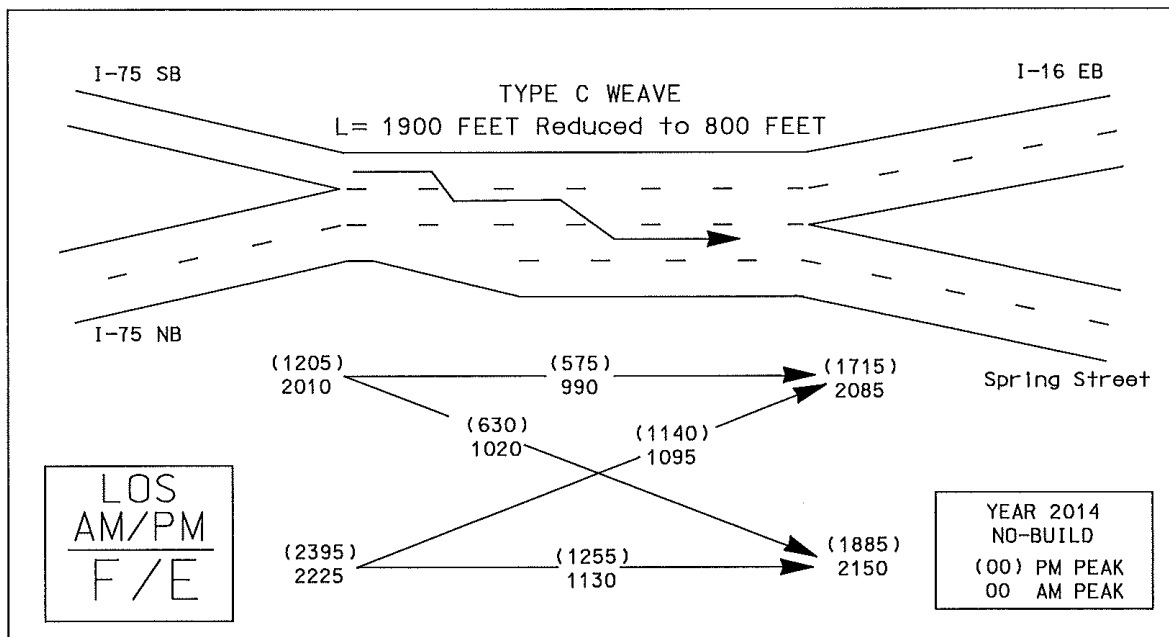
The same two weaving areas on I-16 that were previously analyzed under the existing conditions were also analyzed under the 2014 No-Build condition. The results are provided below in Table 5. The two weaving segments for the No-Build condition are shown in Figures 5 and 6.

Table 5: Year 2014 No-Build Weaving Area LOS Analysis Results							
Freeway	Weaving Area Limits (From/To)	Type	Dir.	N*	Length	AM	PM
I-16	I-75 on-ramp to Spring Street off-ramp	C	EB	3	800	F	E
	Spring Street on-ramp to Coliseum Drive off-ramp	B	EB	3	1000	D	C

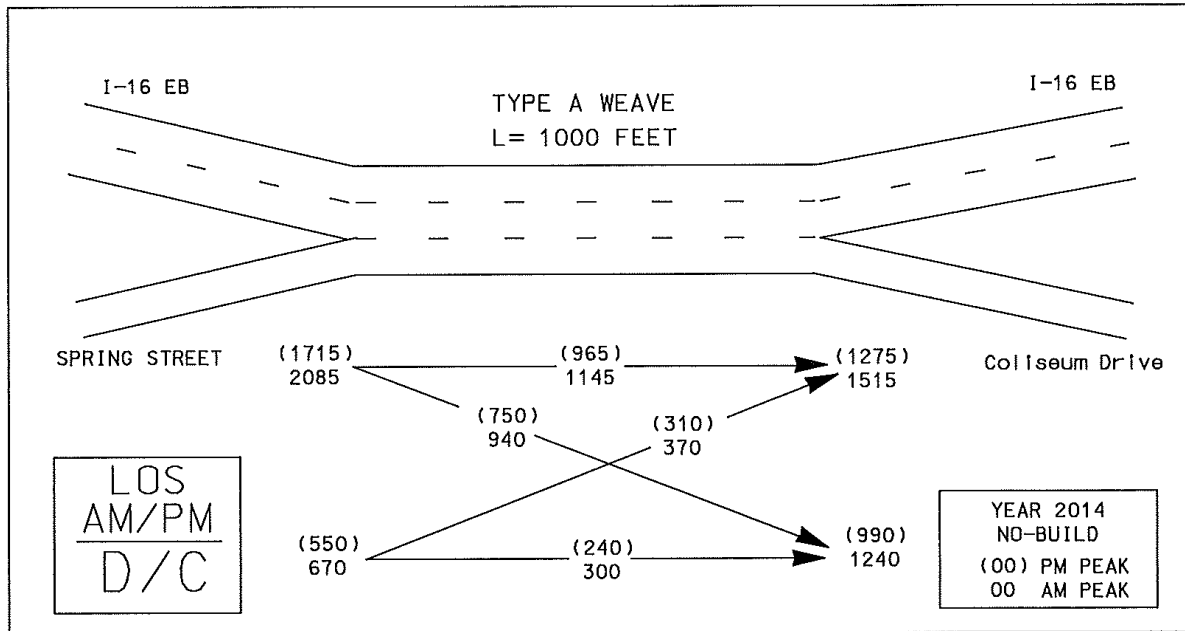
\* Indicates the number of lanes for that particular segment.

The segment of I-16 eastbound between I-75 on-ramp to Spring Street off-ramp would operate at a LOS F and LOS E during the AM and PM peak hours, respectively. The segment of I-16 eastbound between the Spring Street on-ramp and the Coliseum Drive off-ramp was determined to operate at LOS D for the AM peak hour and LOS C for the PM peak hours.

**Figure 5 – Weaving Diagram  
I-16 Eastbound between I-75 and Spring Street**

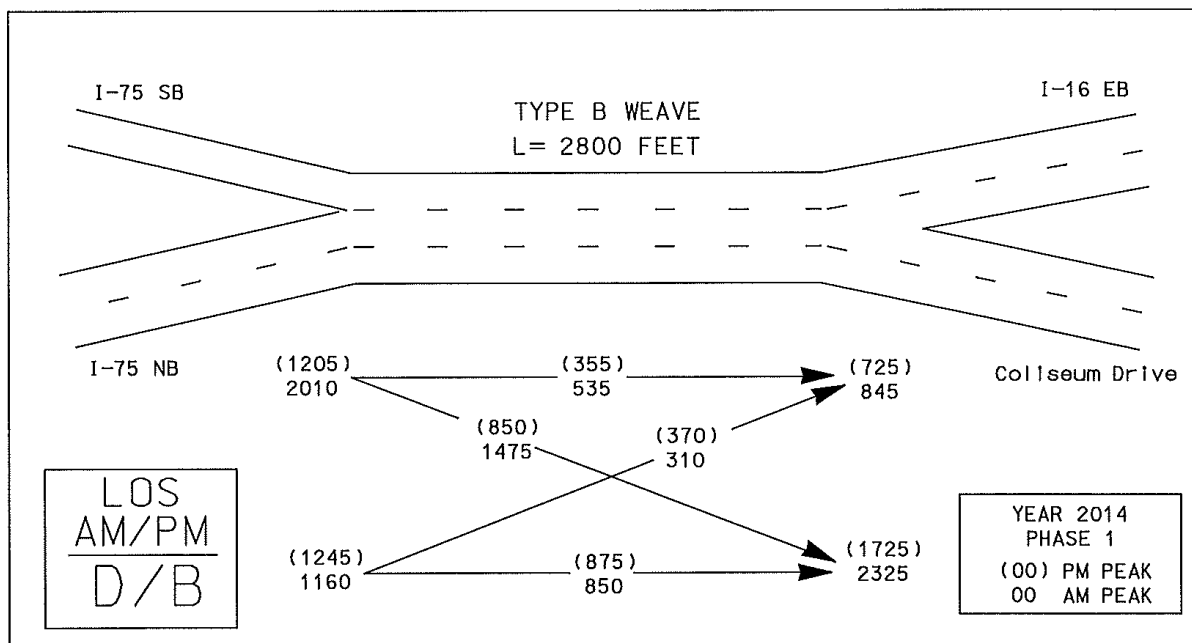


**Figure 6 – Weaving Diagram  
I-16 Eastbound Spring Street and Coliseum Drive**



Phase 1 proposes to eliminate the Type “C” weave and Type “A” weave along this section of I-16 from I-75 to Coliseum Drive and replaces it with one Type “B” weaving section as shown in Figure 7. This is accomplished by no longer allowing motorists from I-75 southbound to exit at Spring Street. This traffic would gain access to the area by exiting at Coliseum Drive. Also, the northbound on-ramp from Spring Street to I-16 eastbound would be eliminated. This traffic would have to travel locally on Riverside Drive to Coliseum Drive to enter I-16 eastbound. With access managed differently along this section of I-16, the levels of service of the weave section on I-16 improve from LOS F/E (AM/PM) in the no-build condition to LOS D/C (AM/PM) in the Phase 1 Build condition.

**Figure 7 – Weaving Diagram  
I-16 Eastbound I-75 and Coliseum Drive**



## 2.2 Basic Freeway Sections

Freeway segment analysis was conducted for one-way freeway segments of I-16 that are proposed to be improved under the Phase 1 Build condition. The projected year 2014 traffic volumes and lane configurations were used to evaluate the no-build and build conditions. The level of service results with the associated direction and number of lanes for each segment are shown in Table 6.

Table 6: Year 2014 Freeway Segment LOS Analysis Results							
Freeway Segments (From/To)	Dir.	No-Build			Build – Phase 1		
		No. of Lanes	AM (LOS)	PM (LOS)	No. of Lanes	AM (LOS)	PM (LOS)
I-16 from I-75 to Spring St	EB	4	C	B			
I-16 from Spring St to Coliseum Dr	EB	3	B	B	3	C	B
I-16 east of Coliseum Dr	EB	2	B	B	2	B	B

The freeway segments shown would operate at acceptable levels of service under both the 2014 No-Build and Build conditions.

However, the TRAF-CORSIM simulation model of the No-Build conditions demonstrates failing levels of service on I-16 for the No-Build condition. The simulation shows that the lack of capacity for traffic

exiting I-16 eastbound at Spring Street creates back-ups through the I-16/I-75 interchange and along northbound I-75 between Hardeman Avenue and I-16 during the AM and PM peak hours. The simulation model of the Phase 1 Build condition demonstrates the better operating conditions with the improvements made to the transportation corridor when compared with the No-Build condition.

## 2.3 Ramps and Ramp Junctions

Ramp junction analysis was performed for all ramp junctions under the year 2014 No-Build alternative and the Phase 1 Build alternative. Results of all the ramp junction analysis are shown in Table 6.

<b>Table 6: Year 2014 Ramp Junction LOS Analysis Results</b>				
<b>Ramp Junctions</b>	<b>No-Build</b>		<b>Build – Phase 1</b>	
	<b>AM (LOS)</b>	<b>PM (LOS)</b>	<b>AM (LOS)</b>	<b>PM (LOS)</b>
I-16 eastbound diverge to Spring Street	C	B	A	A
Spring Street merge with I-16 eastbound	B	B		
I-16 eastbound diverge to Coliseum Drive	B	B	A	A
Coliseum Drive merge with I-16 eastbound	B	B	B	B

The results of the ramp junction analysis show that all of the ramp junctions on this section of I-16 are operating at acceptable levels of service for the build and no-build conditions. Phase 1 build results show that there is some improvement in LOS to the ramp junctions by implementing this access management/operational improvement to this section of I-16.

## 2.4 Intersection Capacity Analysis

Phase 1 improvements include additional turn lanes on Coliseum Drive to facilitate the additional traffic that will be using this interchange in lieu of Spring Street (see Figure 8). Also, part of the Phase 1 improvements includes the modification of the Spring Street Interchange. To improve the merging of traffic from Spring Street onto I-16 westbound, the loop ramp of Spring Street would be closed and a northbound left turn lane would be added on Spring Street at the I-16 westbound on-ramp intersection (see Figure 9). The two-lane westbound on-ramp from Spring Street would be modified to merge the right lane into the left lane of the ramp and then the single-lane ramp would enter I-16 westbound as an auxiliary lane. This modification would eliminate the merging conflict points on I-16 westbound.

Intersection capacity analyses for 2014 No-Build and Build (Phase 1) condition were conducted using HCS. The results are shown in Table 8.

<b>Table 8: Year 2014 Intersection Vehicle Delay (LOS) Analysis Results*</b>				
Intersection	No-Build		Build – Phase 1	
	AM LOS (delay)	PM LOS (delay)	AM LOS (delay)	PM LOS (delay)
Spring Street @ I-16 westbound on-ramp/Emery Hwy	F (112.0)	B (18.5)	D (45.1)	B (18.7)
Spring Street @ I-16 eastbound off-ramp	F (84.0)	F (107.6)	C (40.4)	C (34.3)
Coliseum Drive @ I-16 westbound off-ramp **	F (187.9)	F (89.9)	B (12.3)	B (19.0)
Coliseum Drive @ I-16 eastbound off-ramp	D (44.5)	F (222.4)	C (21.2)	C (33.9)
Coliseum Drive @ Riverside Drive	B (17.3)	C (27.7)	C (25.0)	C (34.9)

\* Values are given in seconds per vehicle (LOS)

\*\* Unsignalized analysis for the No-Build Condition only

The results indicate that most of the intersections under the 2014 no-build condition would operate at failing levels of service. The levels of service with the Phase 1 improvement would provide the lane capacity to operate all of the intersections at LOS D or better for both peak hours.

In summary, the proposed Phase 1 traffic conditions would improve the traffic operations on I-16 by reducing the conflict points of the merges and diverges. This would result in potentially few traffic Crashes. The proposed Phase 1 would also improve the operational level of service on key freeway segments, weaving segments, ramp junctions and intersections.

Figure 8 – Lane Configuration of Coliseum Drive  
Existing Lane Configuration and Future Phase 1 Improvement

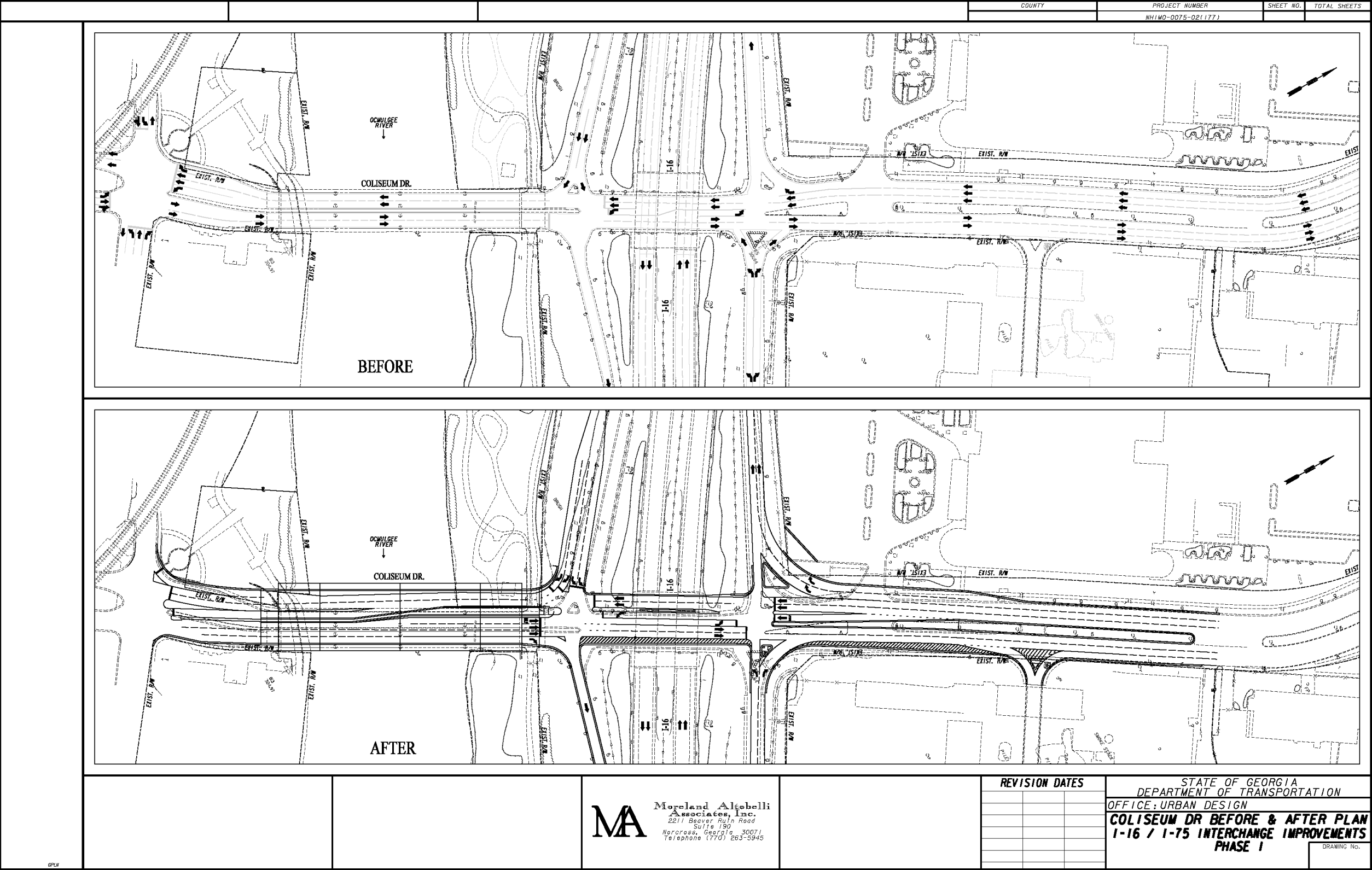
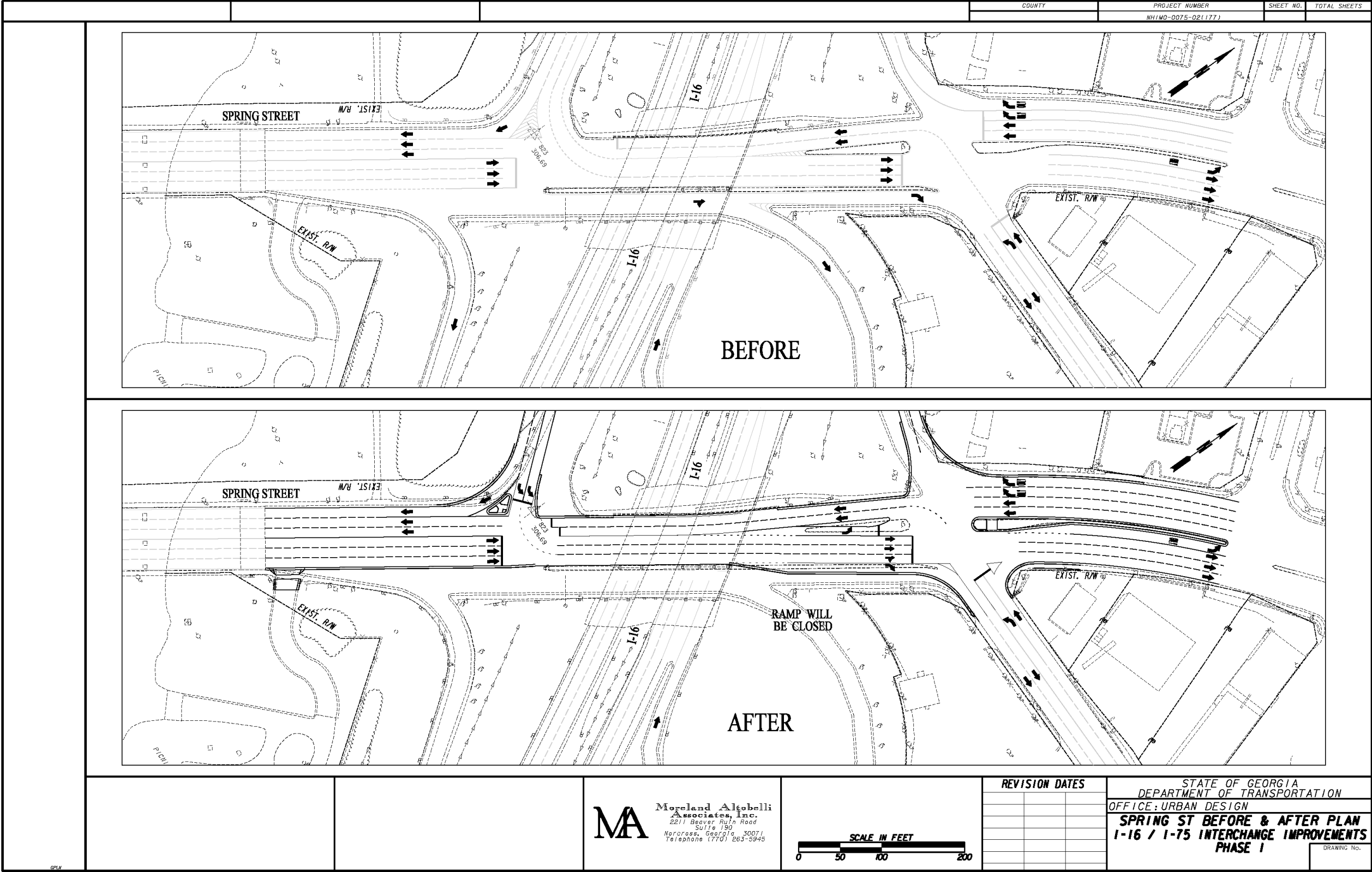


Figure 9 – Lane Configuration of Spring Street  
Existing Lane Configuration and Future Phase 1 Improvement



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### 3.0 CONCLUSION

In conclusion, construction of Phase 1 improvements will result in improved operational efficiency along I-16 from I-75 to Coliseum Drive, which satisfies the need and purpose. Phase 1 provides additional capacity on Coliseum Drive and eliminates a weaving section on I-16 that was shown to be the site of several crashes over the years 2001 through 2006. Construction of Phase 1 would also improve traffic flow on I-16 by reducing the queuing on the Spring Street ramp that is impeding traffic flow on the I-16 mainline.

Additionally, Phase 1 improves the traffic merging operations on I-16 westbound at Spring Street. The existing lane configuration of the merge point does not provide adequate driver decision time or sight distance and is the root-cause of the historically high Crash rate for this section of freeway. Attempts to eliminate this problem with improved signage have not been successful. Phase 1 construction would improve the merging of traffic by closing the loop ramp of Spring Street and replacing it with a northbound left turn lane on northbound Spring Street. The two-lane westbound on-ramp from Spring Street would be modified to merge the right lane into the left lane of the ramp and then the single-lane ramp would enter I-16 westbound as an auxiliary lane. This modification would eliminate the merging conflict points on I-16 westbound thereby reducing traffic crashes.

When compared to the No-Build condition, the proposed Phase 1 project configuration eliminates the most notable weaving movements and deficient merge points subsequently improving traffic operations and safety along I-16.

The I-16/I-75 Interchange reconstruction project is listed in the current State Transportation Improvement Plan (STIP) as P.I. Nos. 311000, 311005, 311400, and 311410. It is also listed in the Macon Area Transportation Study's (MATs) Transportation Improvement Program as projects NHIM0-0016-01 (092), P.I. No. 311000; NHIM0-0016-01 (131), P.I. No. 311005; NHIM-0075-02 (177), P.I. No. 311400; and NH000-0016-01 (104), P.I. No. 311410. Phase 1 would be a part of project NHIM0-0016-01 (092), P.I. No. 311000.

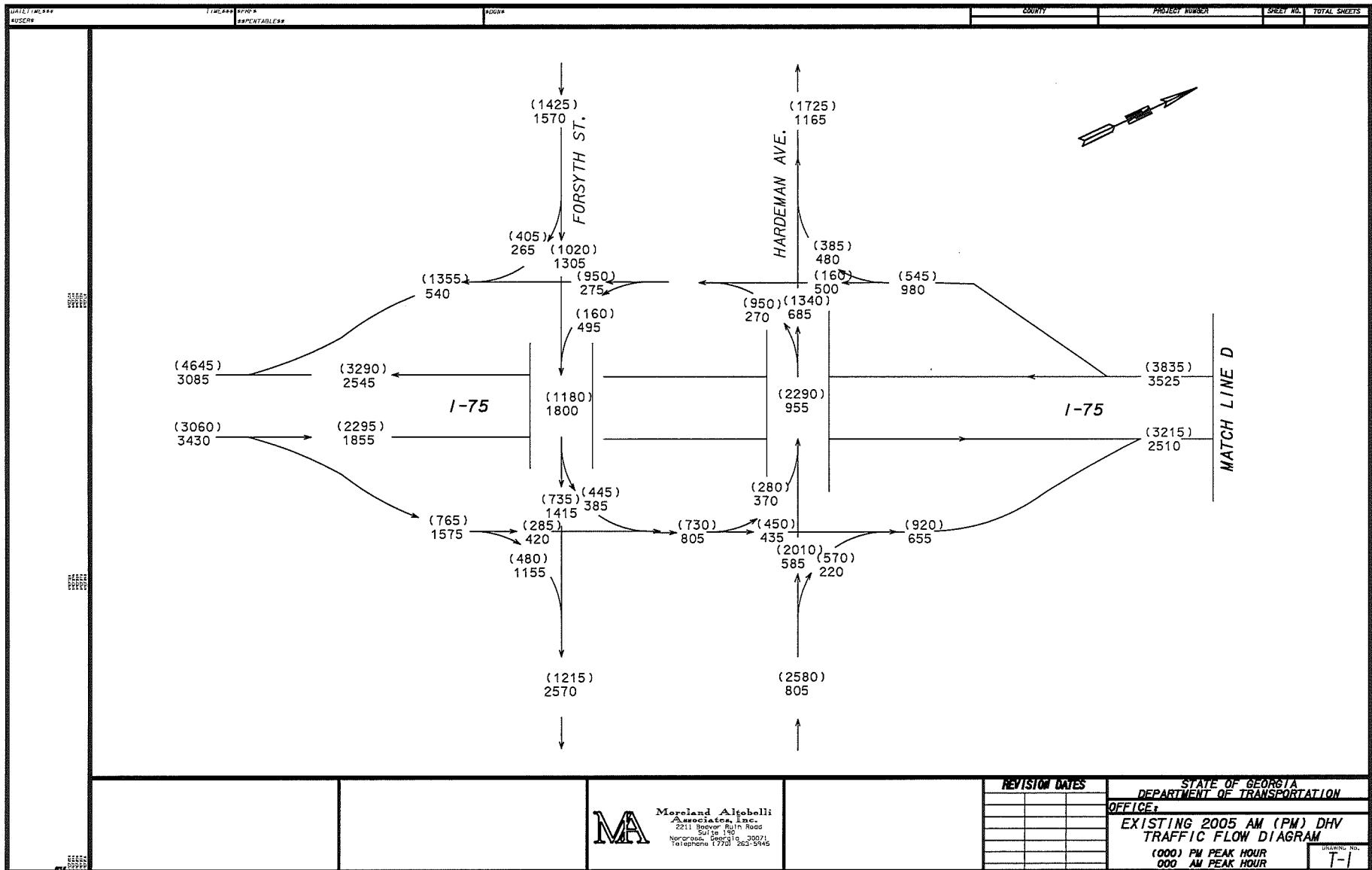
# **APPENDIX**

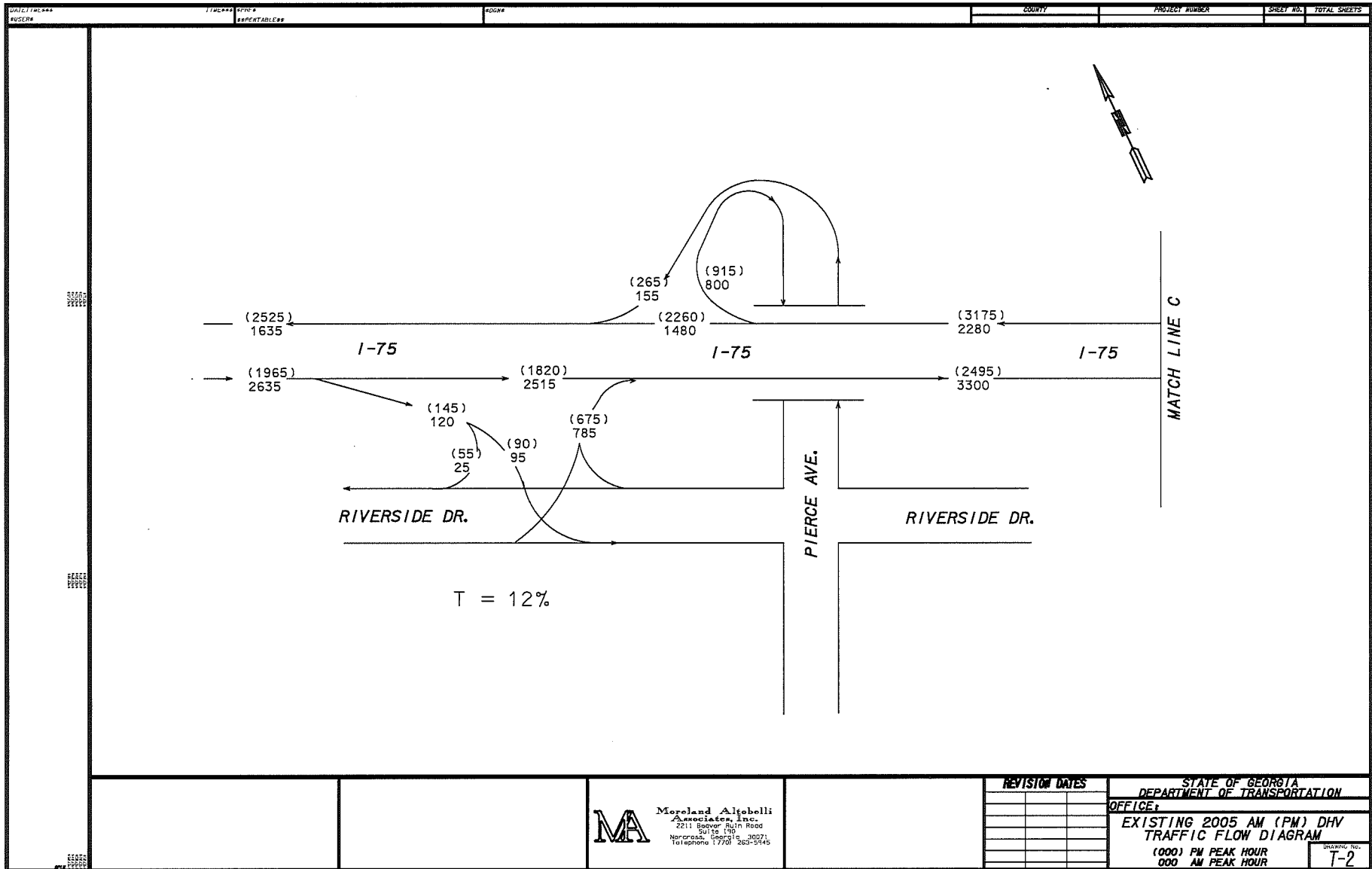
## **Traffic Flow Diagrams**

**Year 2005 - Existing**

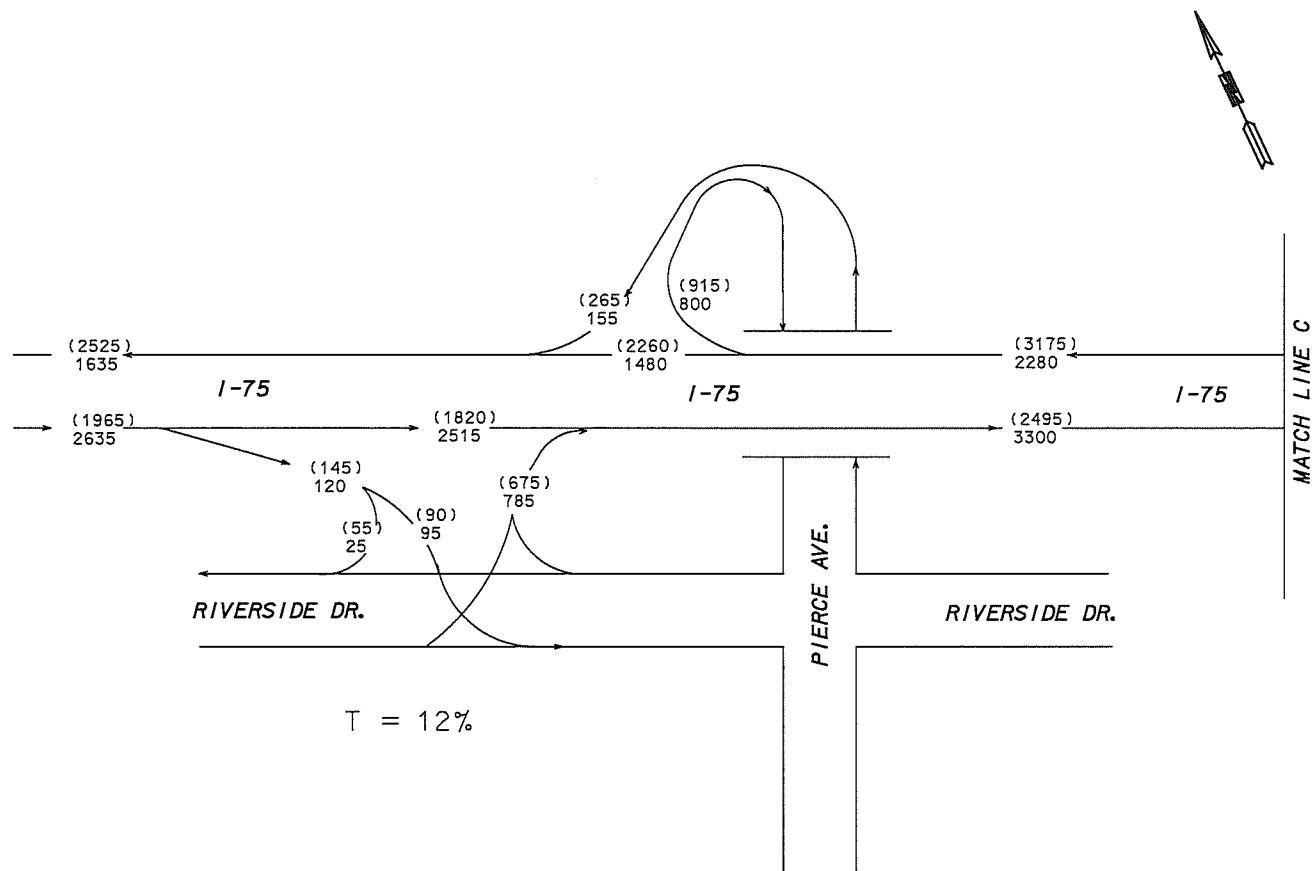
**Year 2014 – No-Build**

**Year 2014 – Build -Phase 1**





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BUSINESS	REPRESENTATIVE	ADVISOR				



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# REVISION DATES

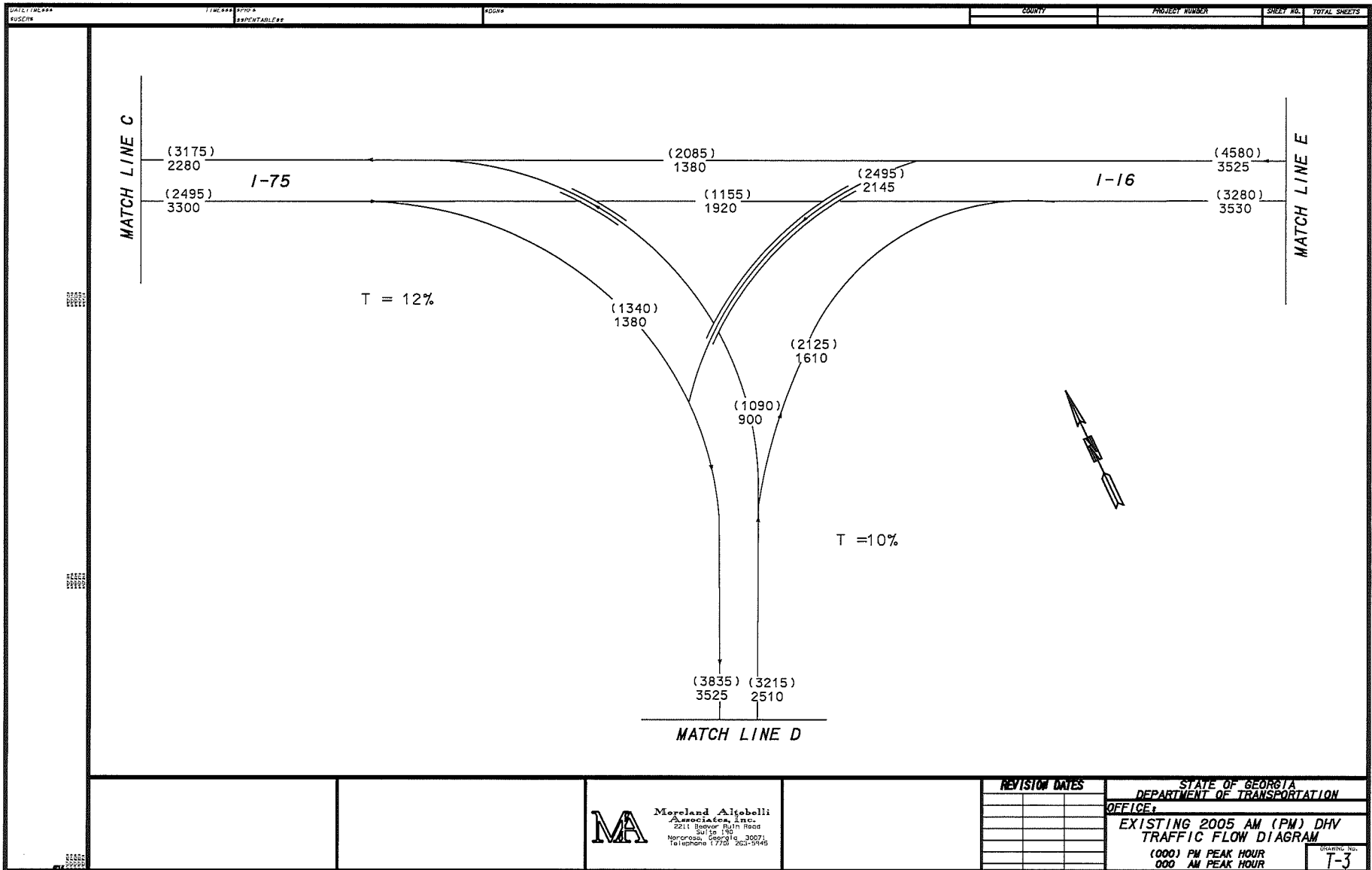

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DEPARTMENT OF TRANSPORTATION  
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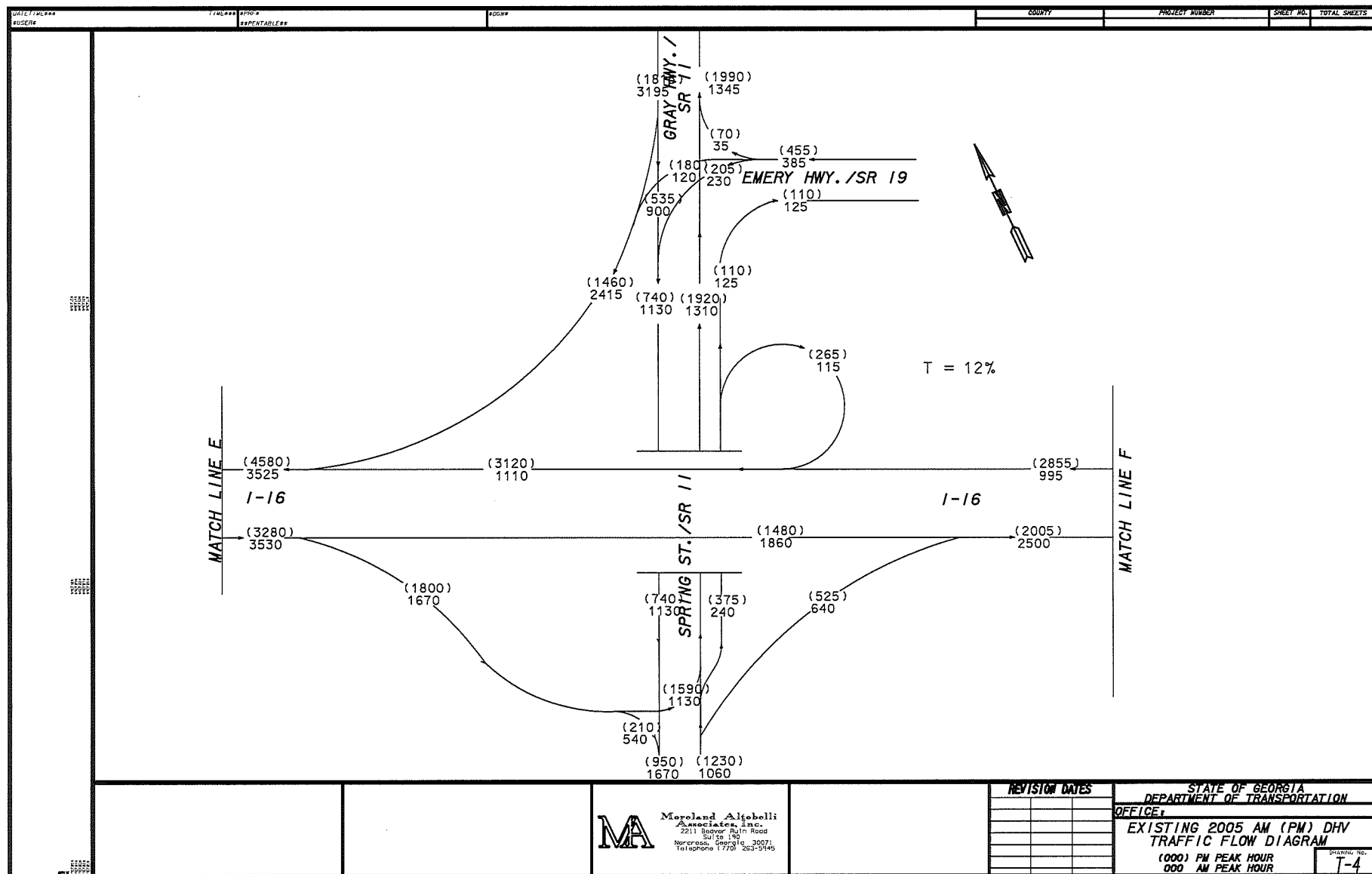
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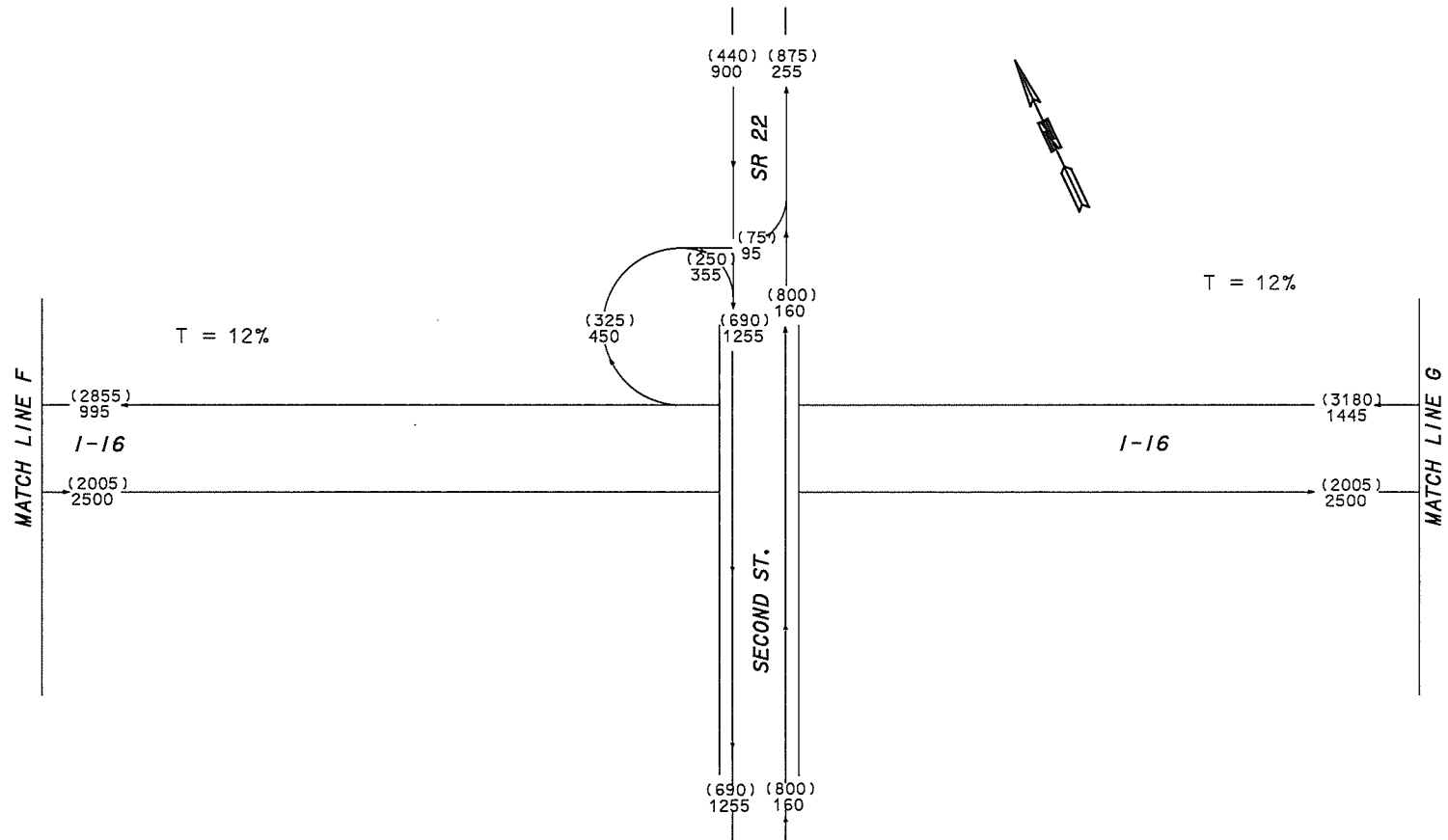
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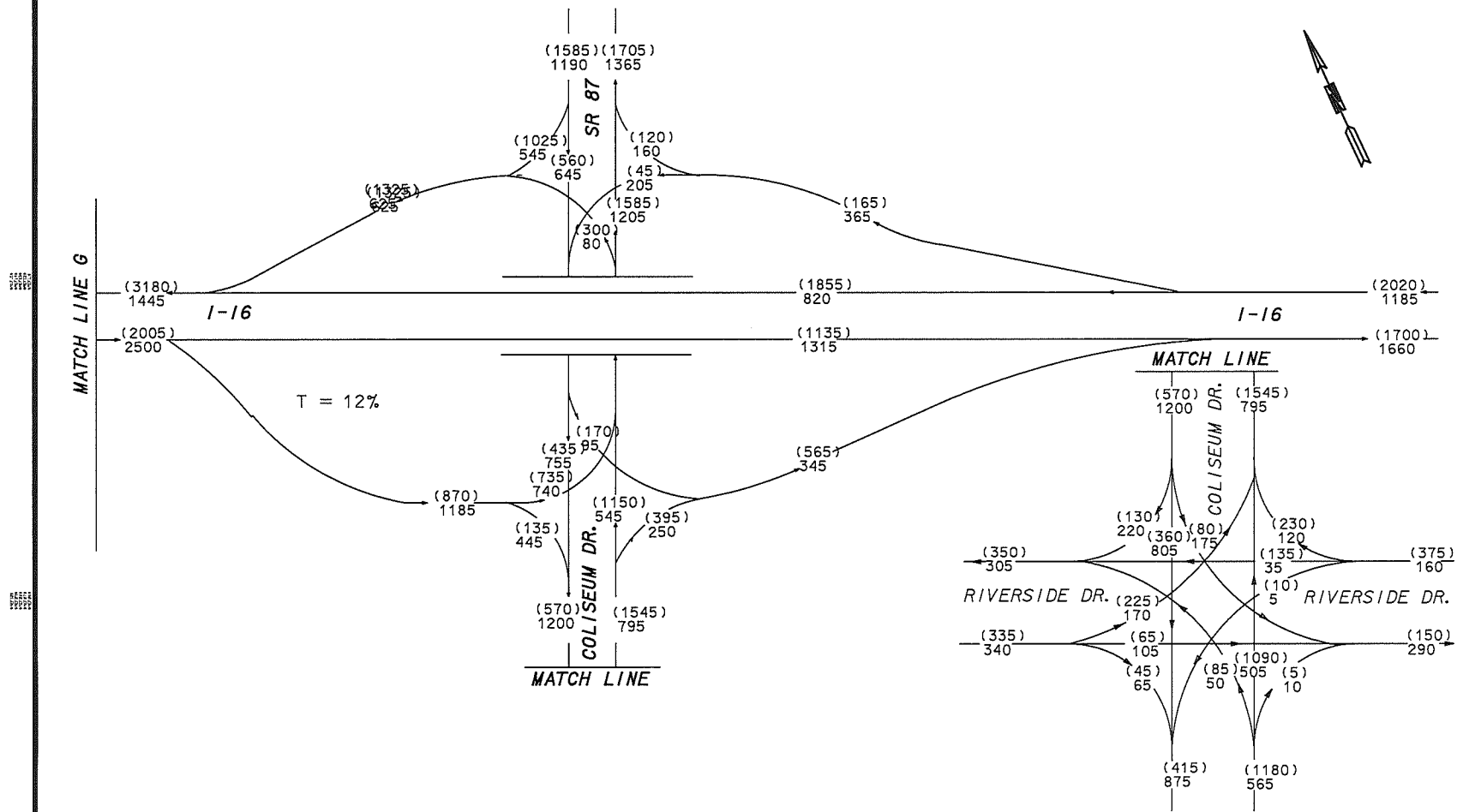

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DEPARTMENT OF TRANSPORTATION  
OFFICE:

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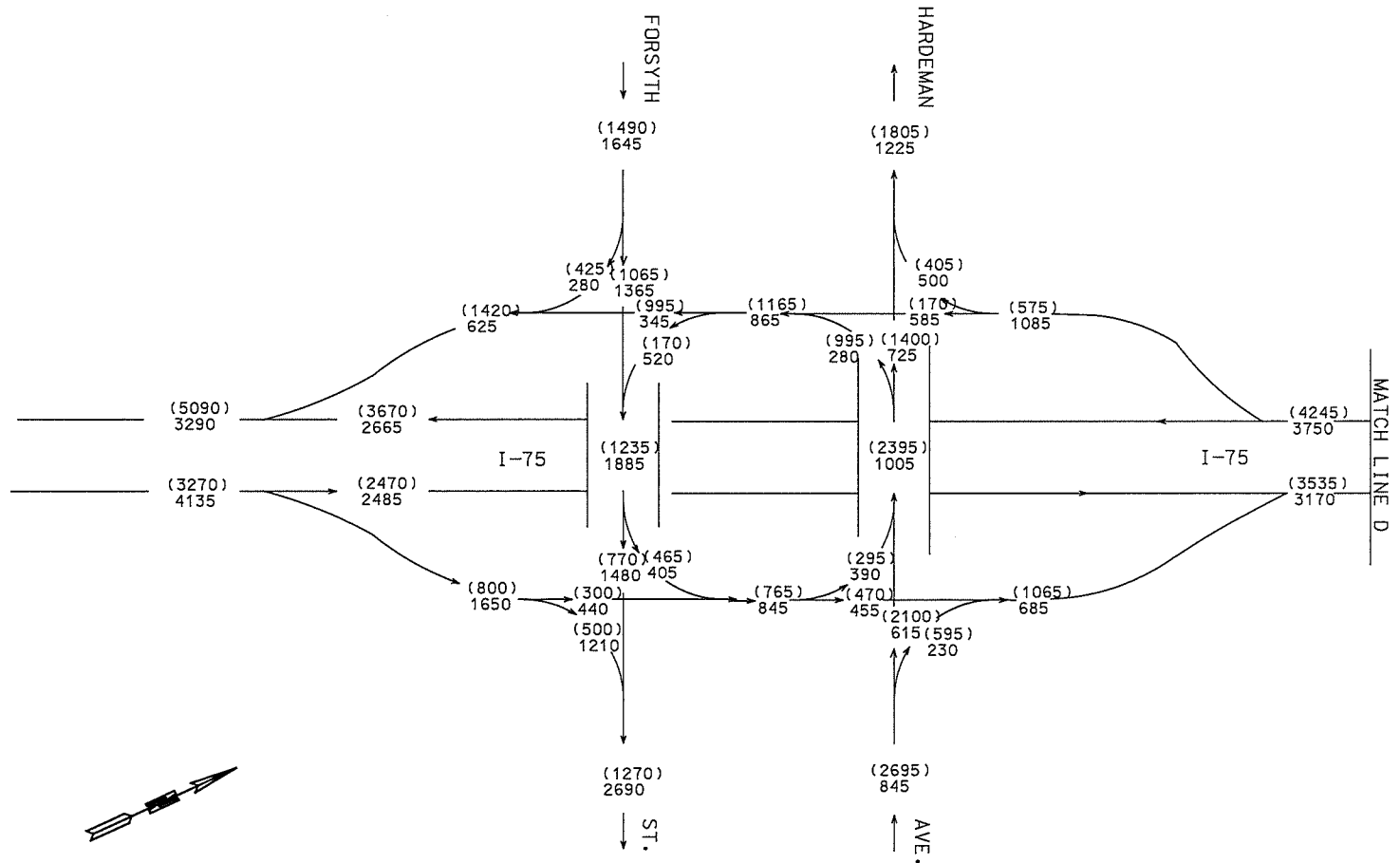




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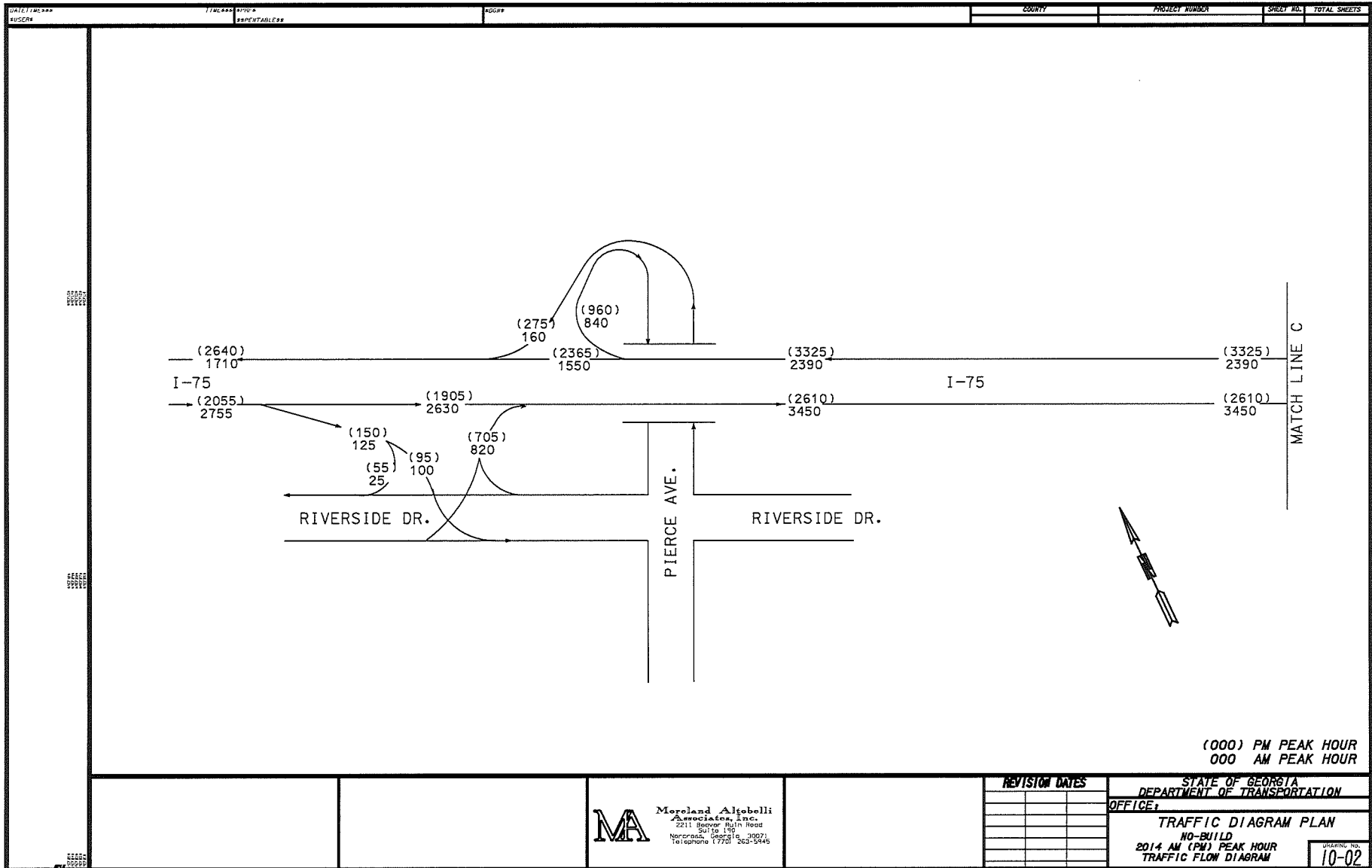


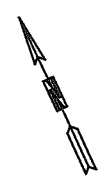
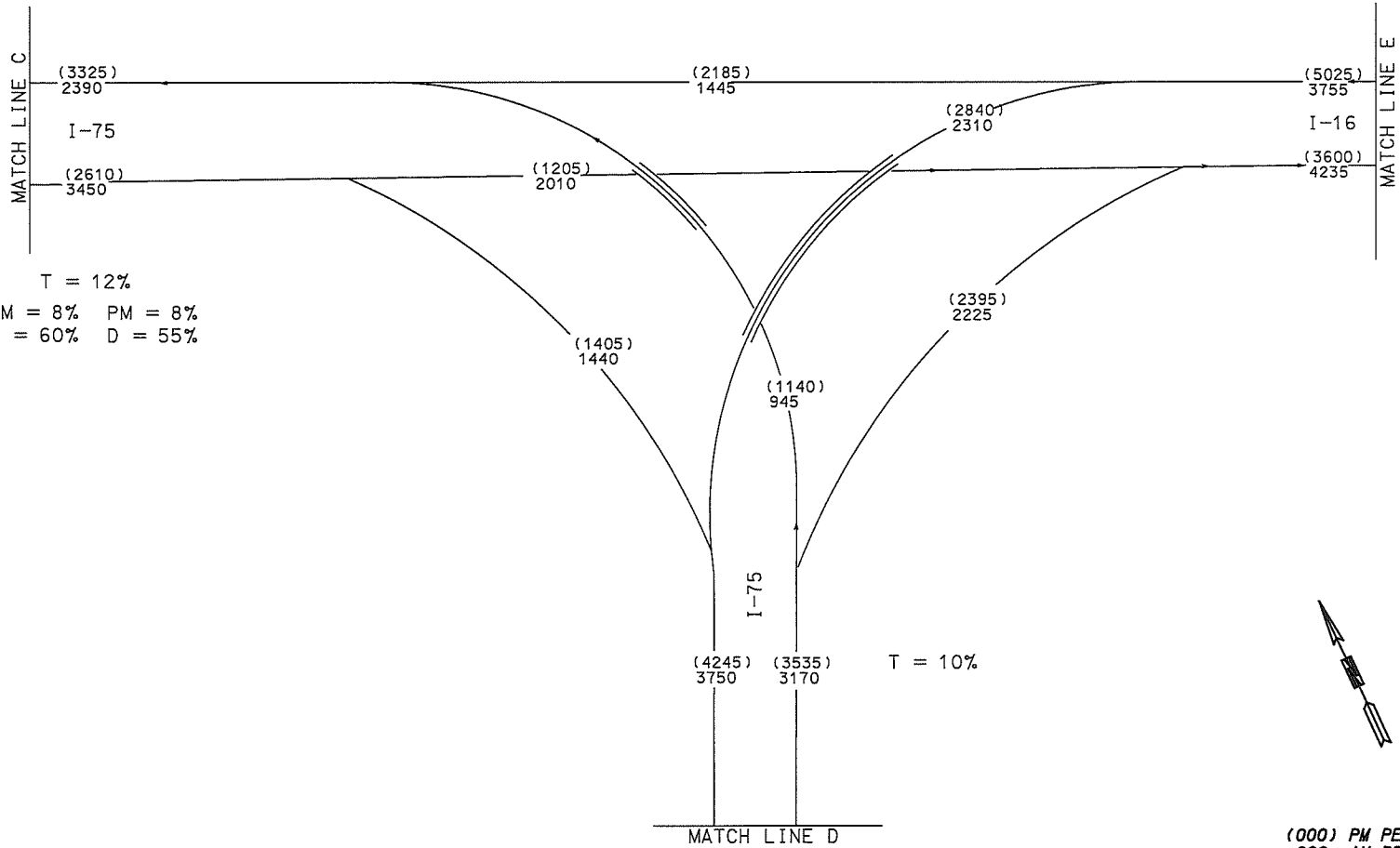
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STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION	
OFFICE:	
<b>TRAFFIC DIAGRAM PLAN</b>	
NO-BUILD 2014 AM (PM) PEAK HOUR TRAFFIC FLOW DIAGRAM	
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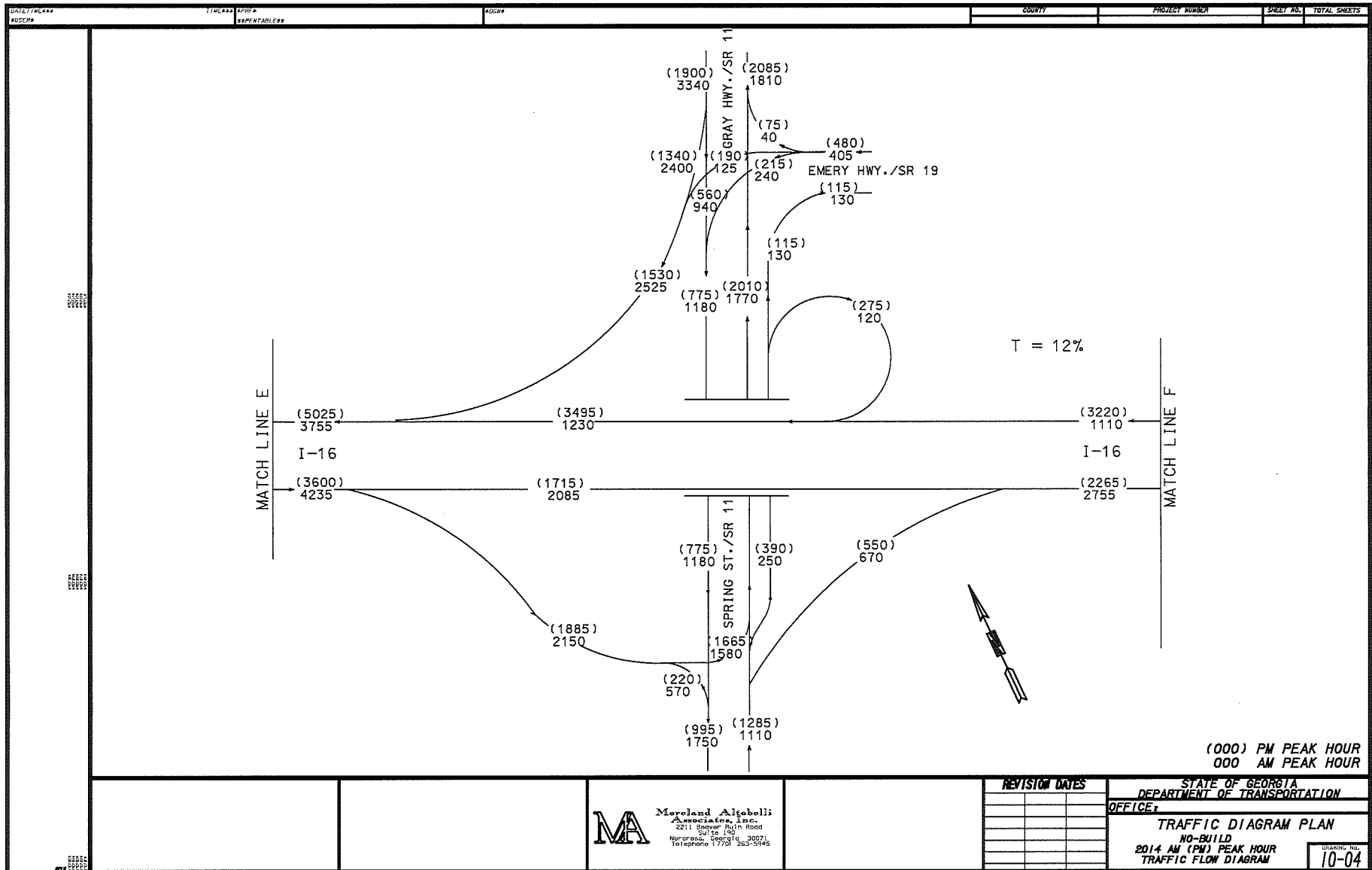
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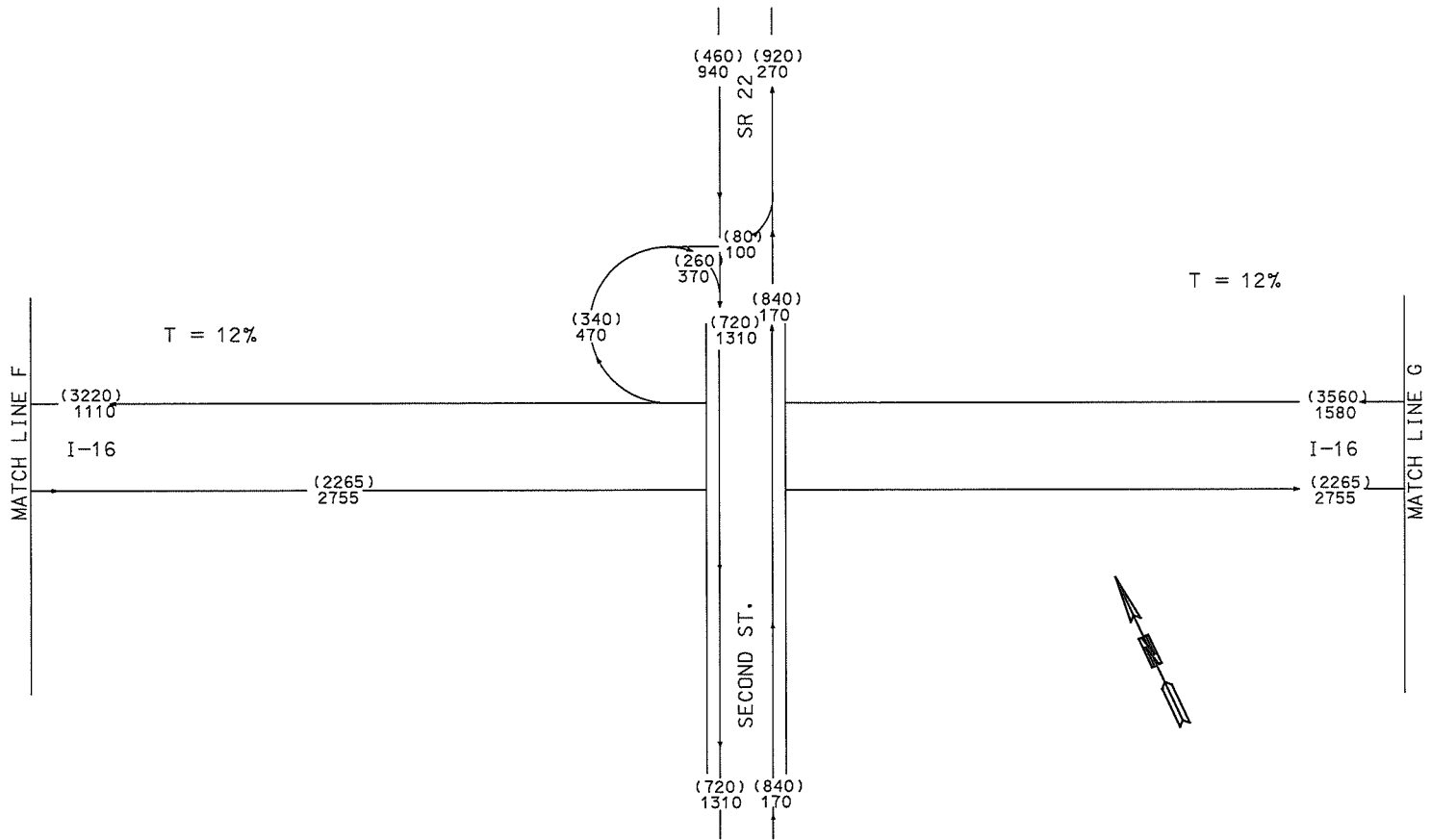
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TRAFFIC DIAGRAM PLAN  
NO-BUILD  
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TRAFFIC FLOW DIAGRAM

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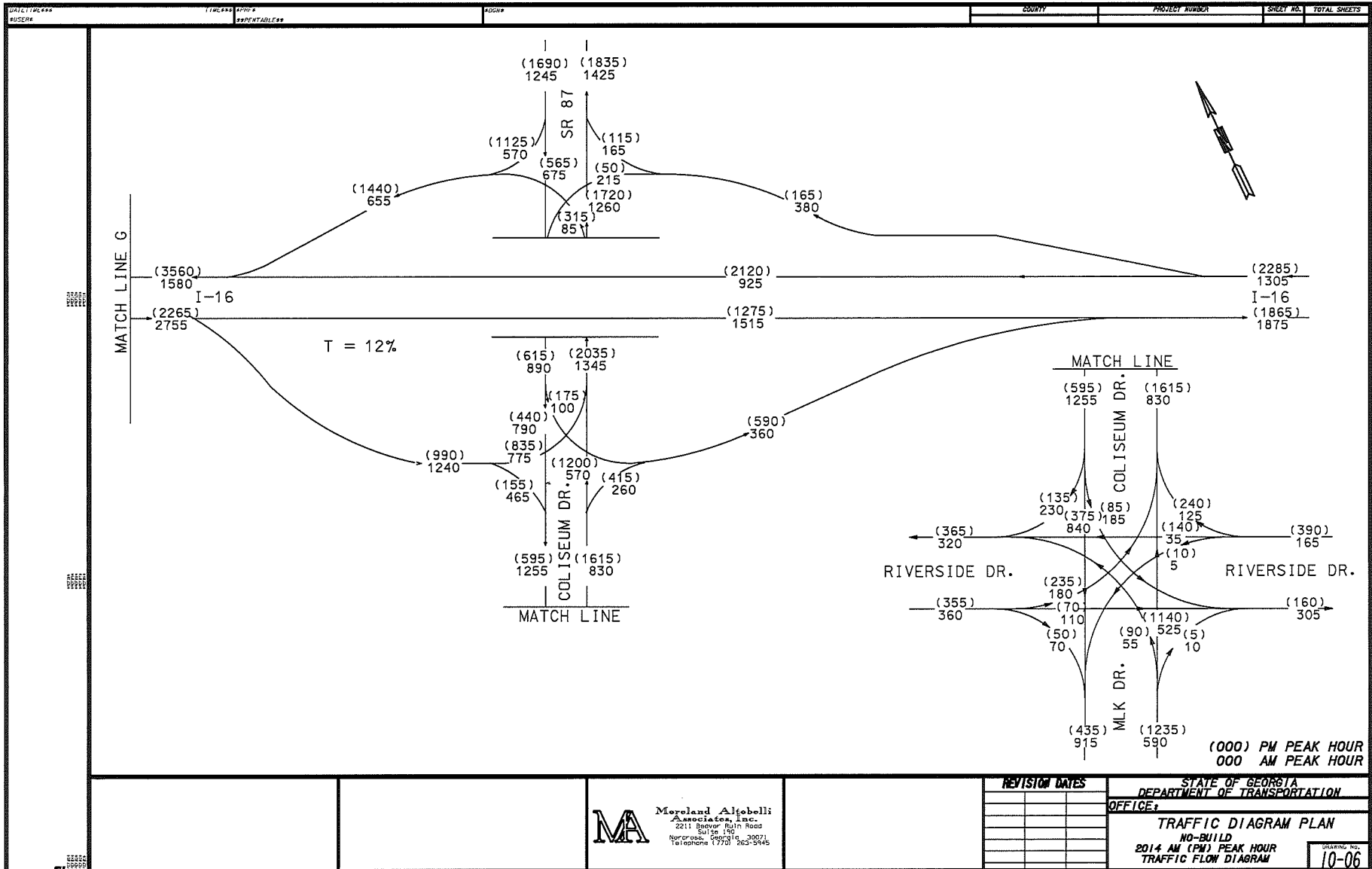
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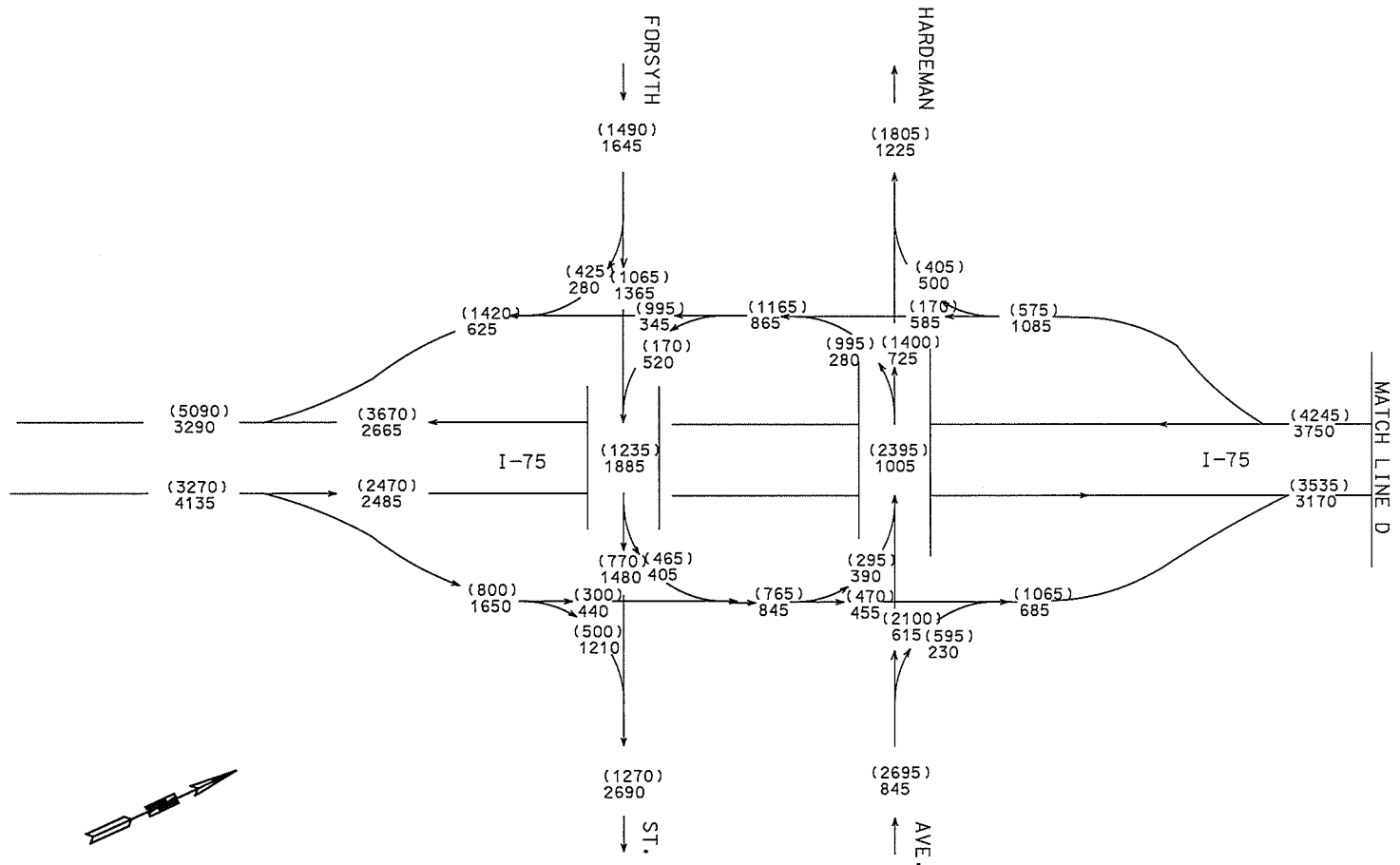
REVISION DATES


STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE:

TRAFFIC DIAGRAM PLAN  
NO-BUILD  
2014 AM (PM) PEAK HOUR  
TRAFFIC FLOW DIAGRAM

DRAWING NO.  
10-05





(000) PM PEAK HOUR  
000 AM PEAK HOUR



Moreland Altabelli  
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Suite 100  
Norcross, Georgia 30071  
Telephone 1-770-263-5465

REVISION DATES

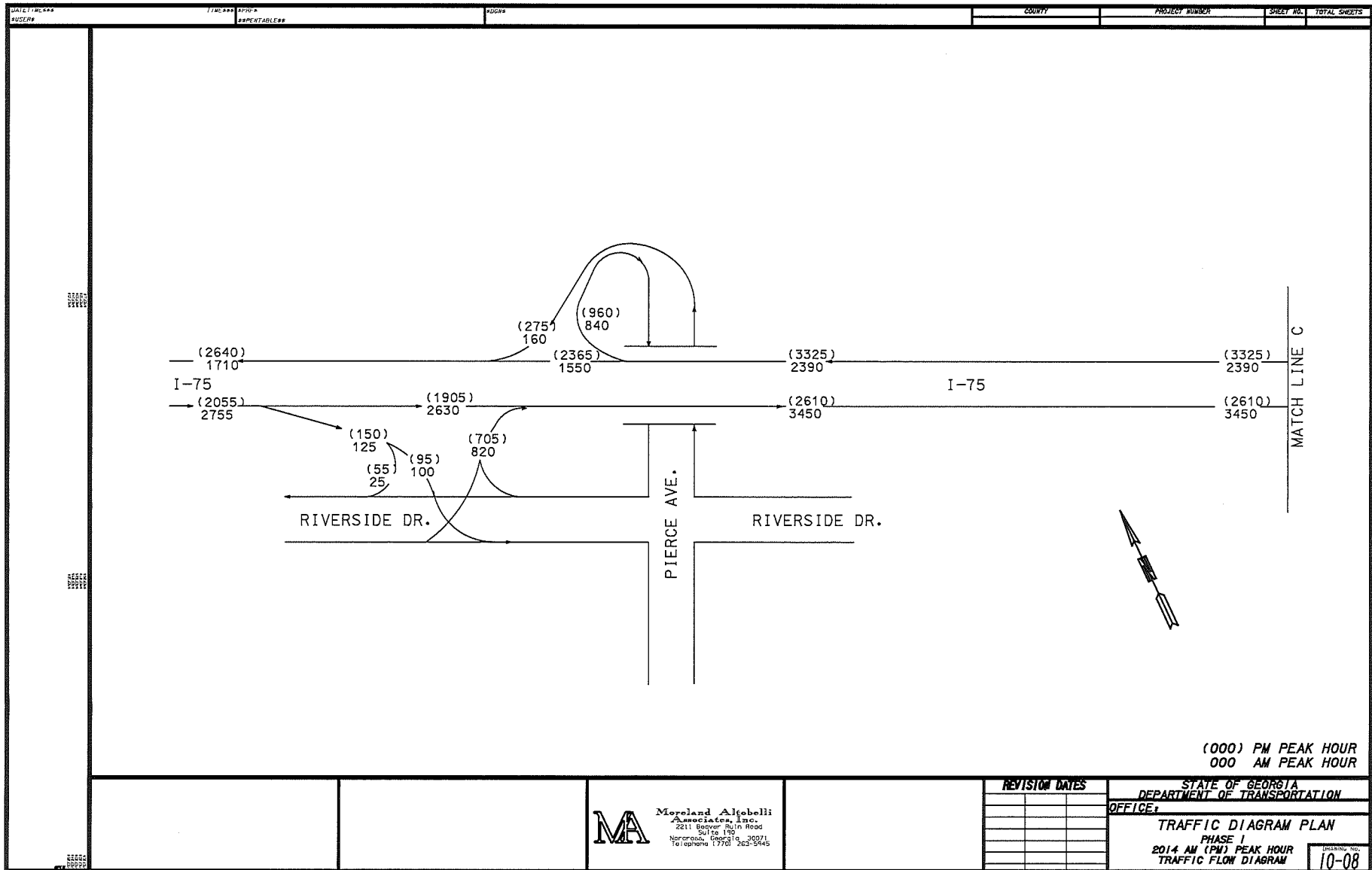

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE

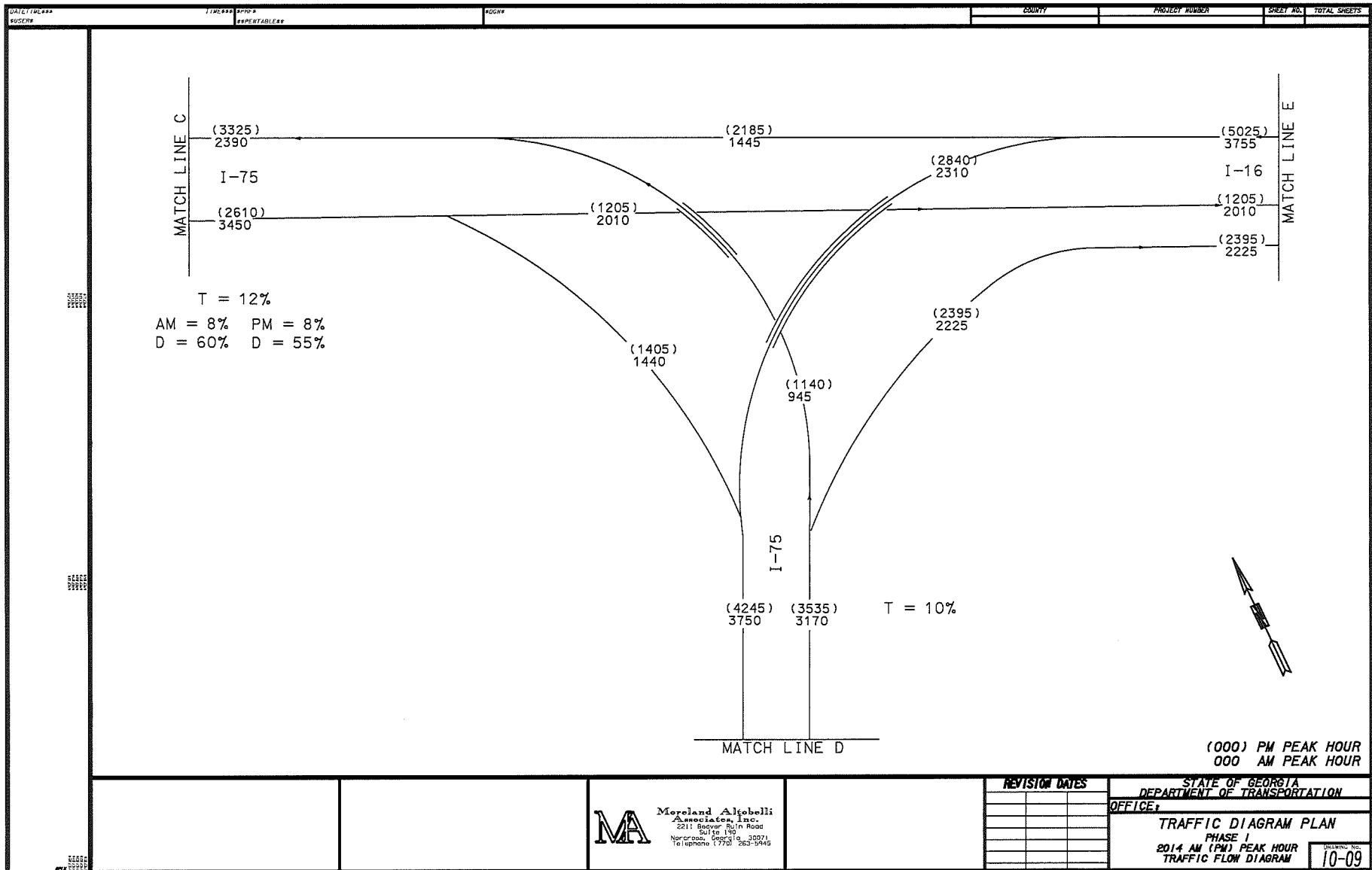
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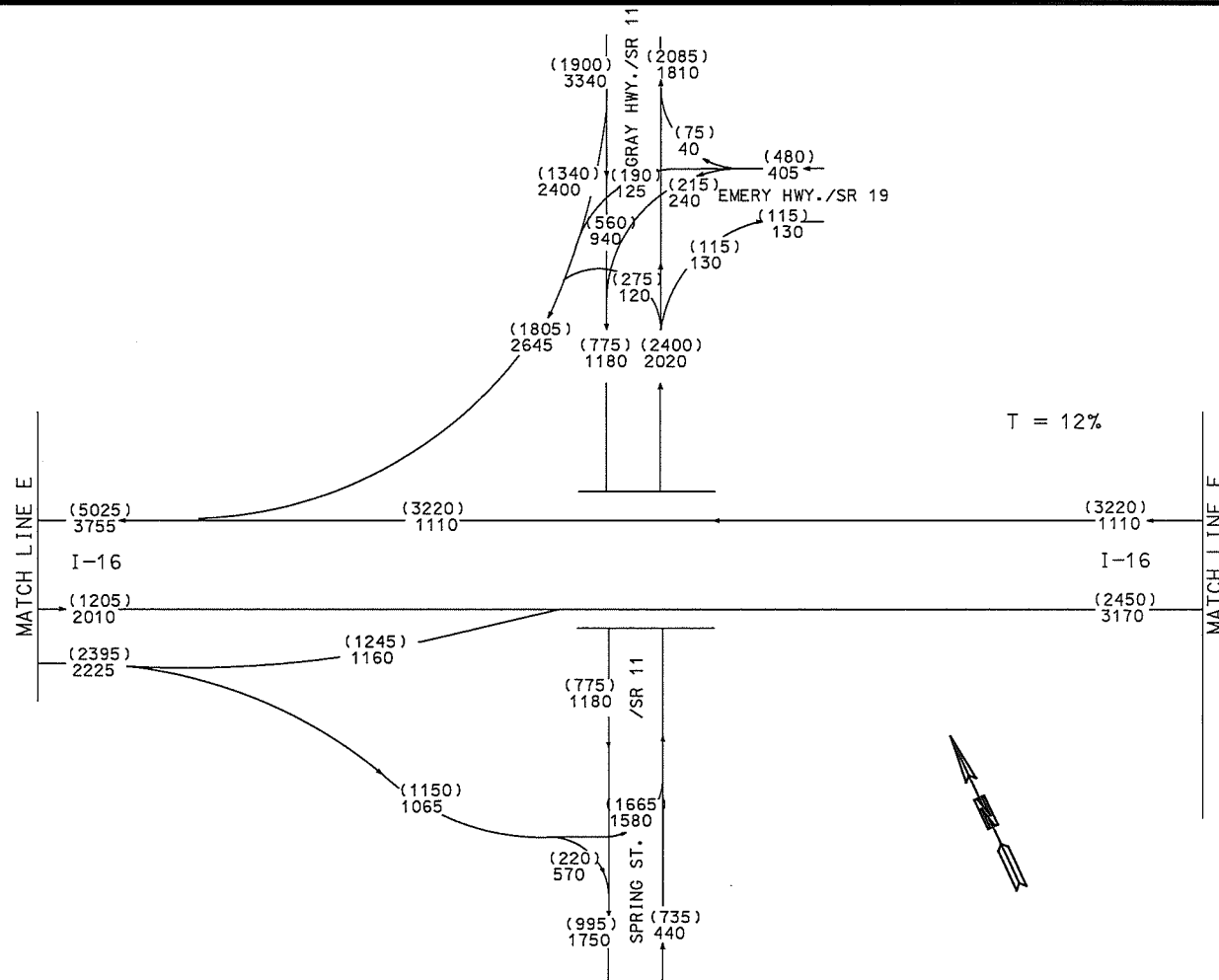
PHASE I  
2014 AM (PM) PEAK HOUR  
TRAFFIC FLOW DIAGRAM

DRAWING NO.  
10-07









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(000) PM PEAK HOUR  
000 AM PEAK HOUR



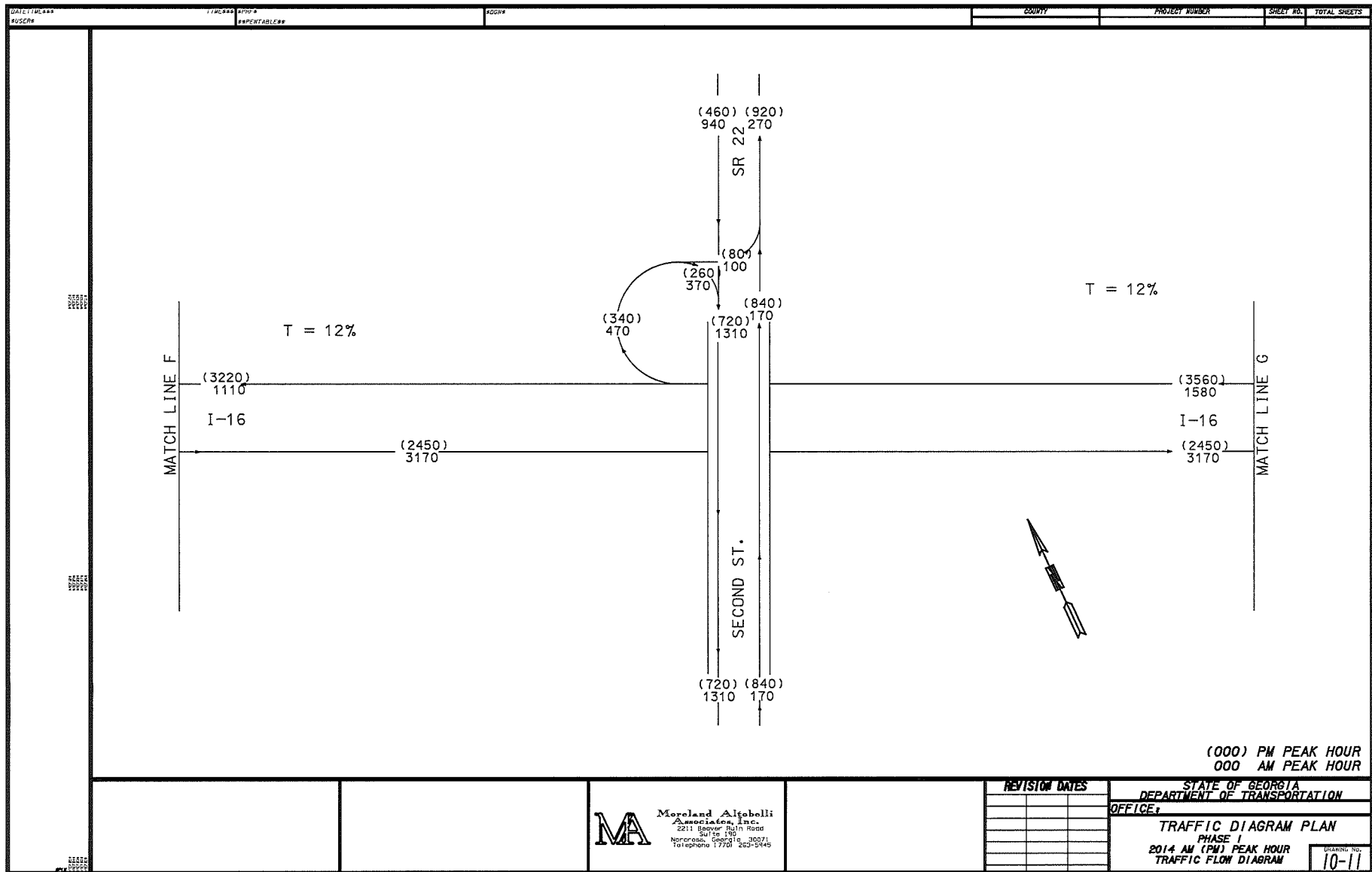
Moreland Altabelli  
Associates, Inc.  
2211 Beaver Run Road  
Suite 100  
Norcross, Georgia 30071  
Telephone 1-770-263-5945

REVISION DATES

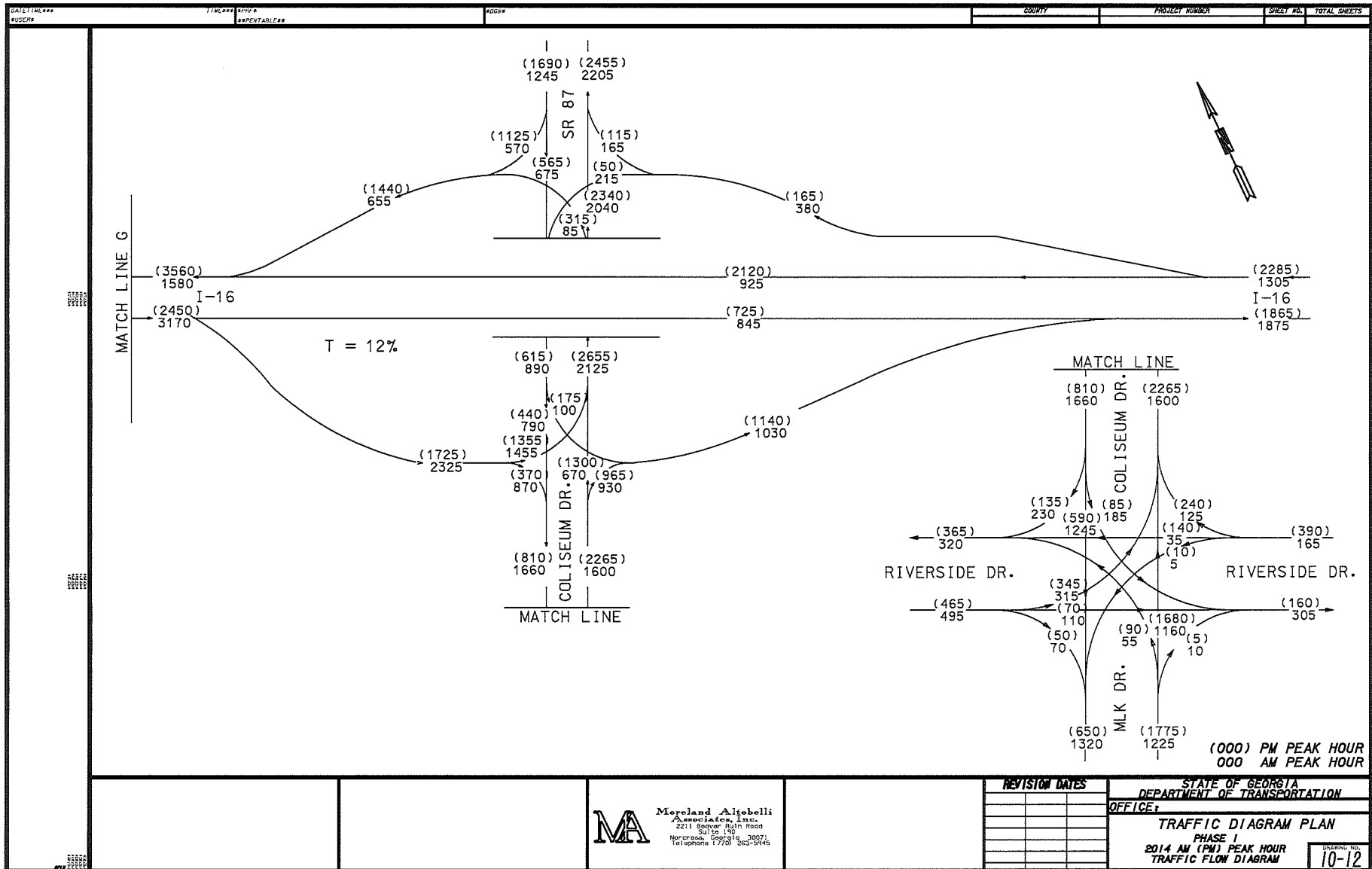

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE:

TRAFFIC DIAGRAM PLAN  
PHASE I  
2014 AM (PM) PEAK HOUR  
TRAFFIC FLOW DIAGRAM

DRAWING NO.  
10-10



Moreland Altabelli  
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Revised Project Concept Report

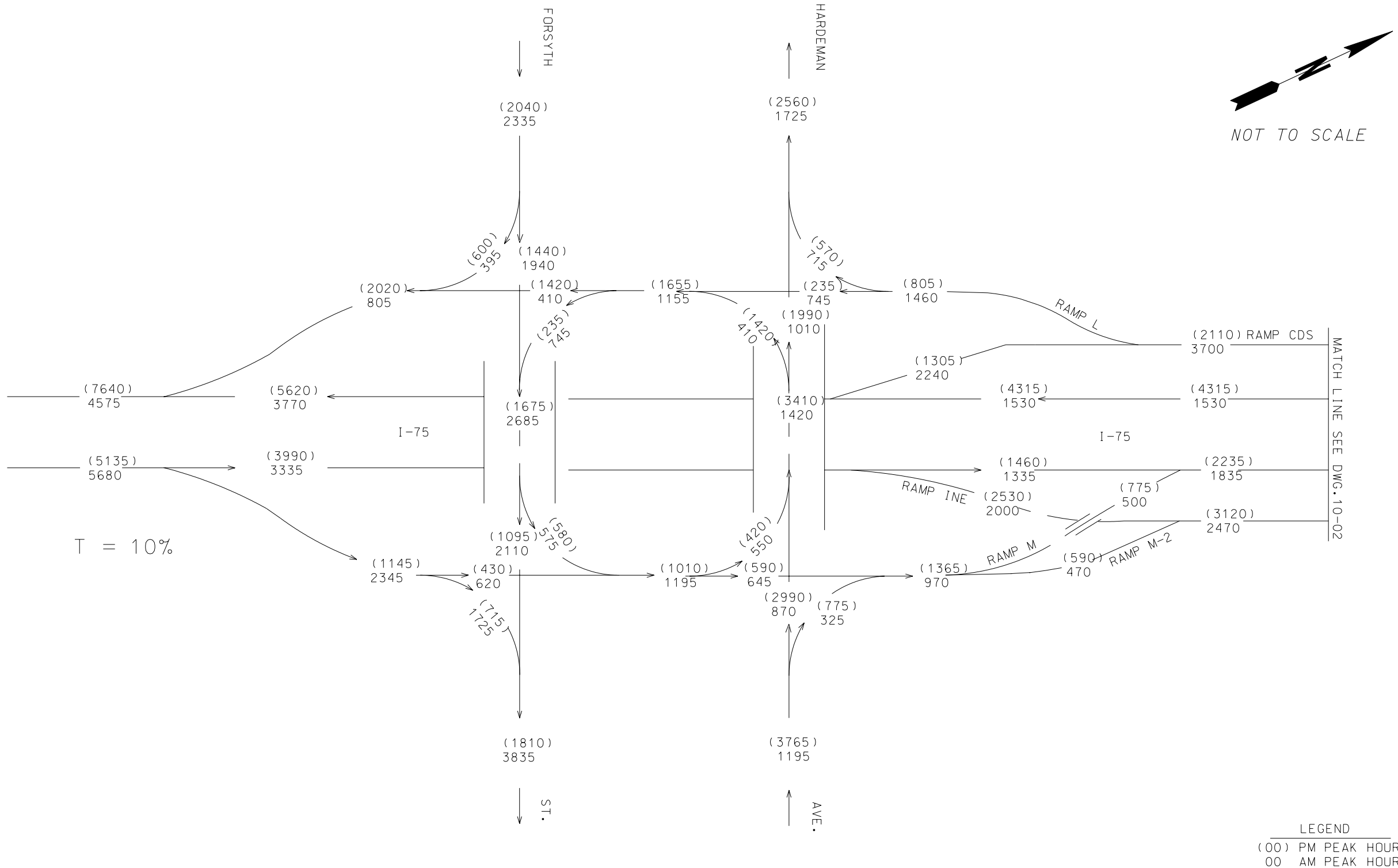
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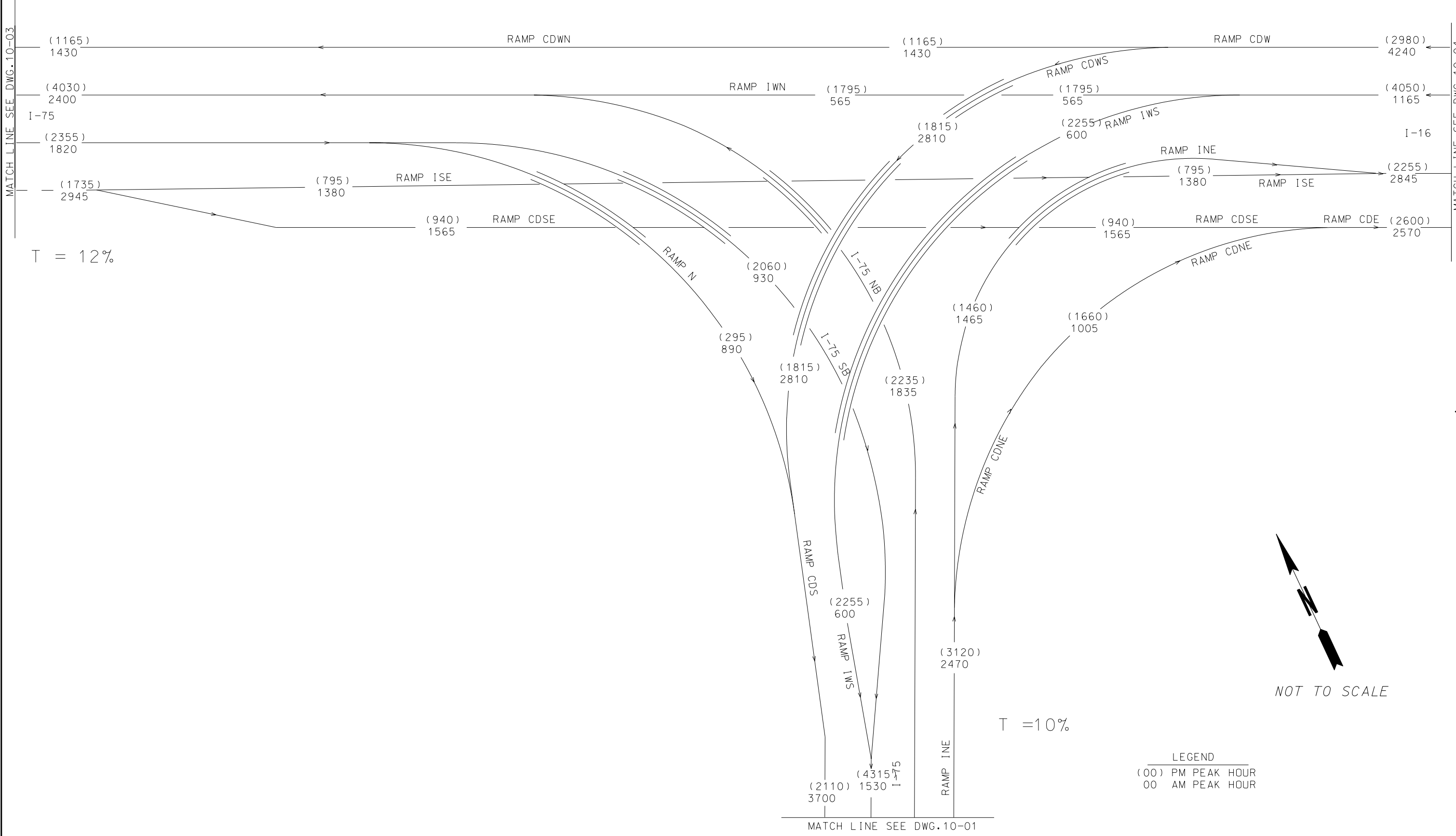
P.I. Numbers: 311000, 311005, 311400, 311410

County: Bibb County

## **ATTACHMENT #5**

### **TRAFFIC FLOW DIAGRAMS**





MA

MORELAND-ALTOBELLI ASSOC., INC.  
(770) 263-5945

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
SUPERVISED BY:	BRAD HALE P. E.

REVISION DATES		

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION

OFFICE:

TRAFFIC DIAGRAM  
PLAN

2036 AM (PM) DHV  
TRAFFIC FLOW DIAGRAM

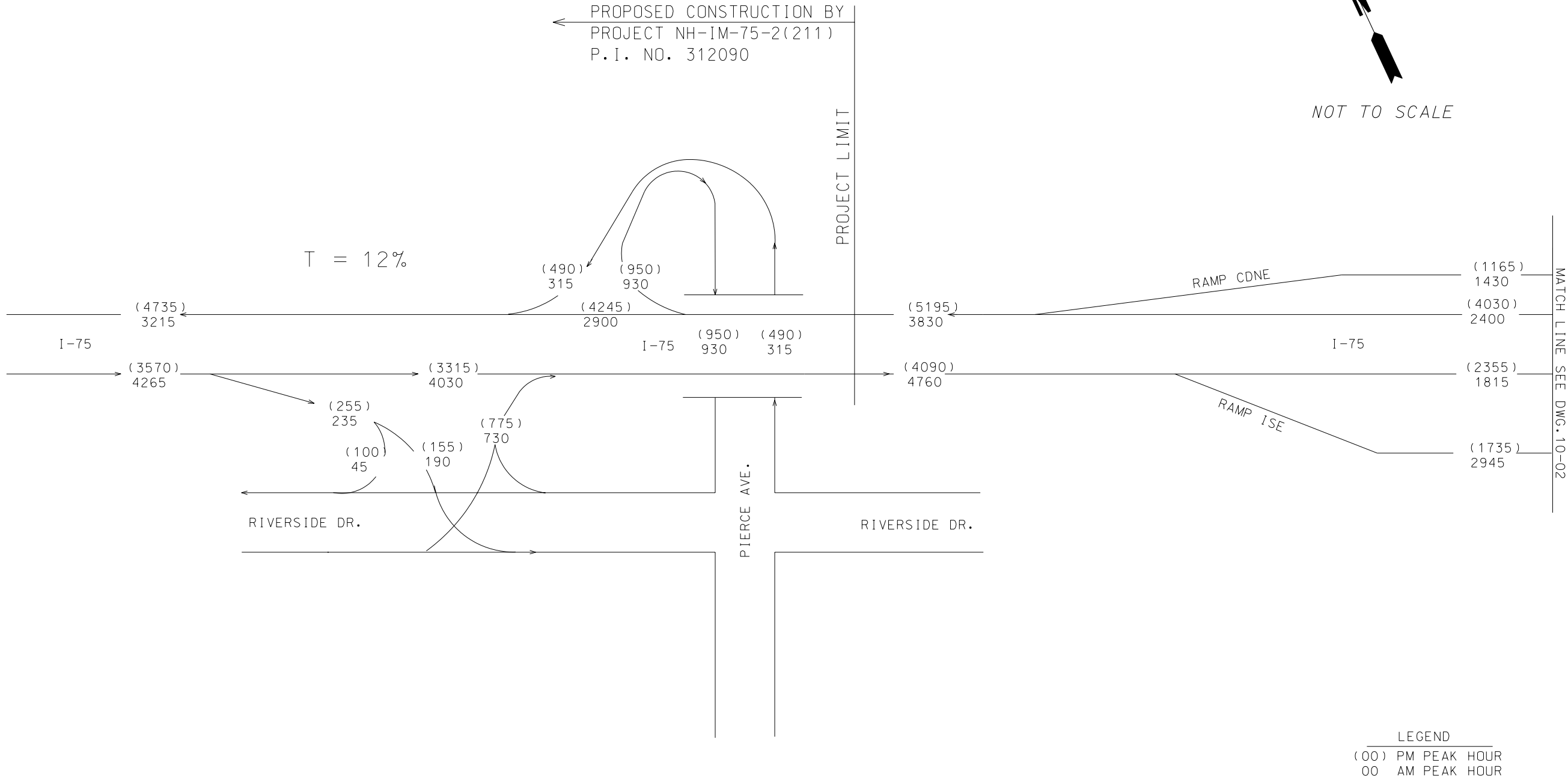
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(770) 263-5945

DESIGNED BY:

DRAWN BY:

CHECKED BY:

SUPERVISED BY: BRAD HALE P. E.

REVISION DATES

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION

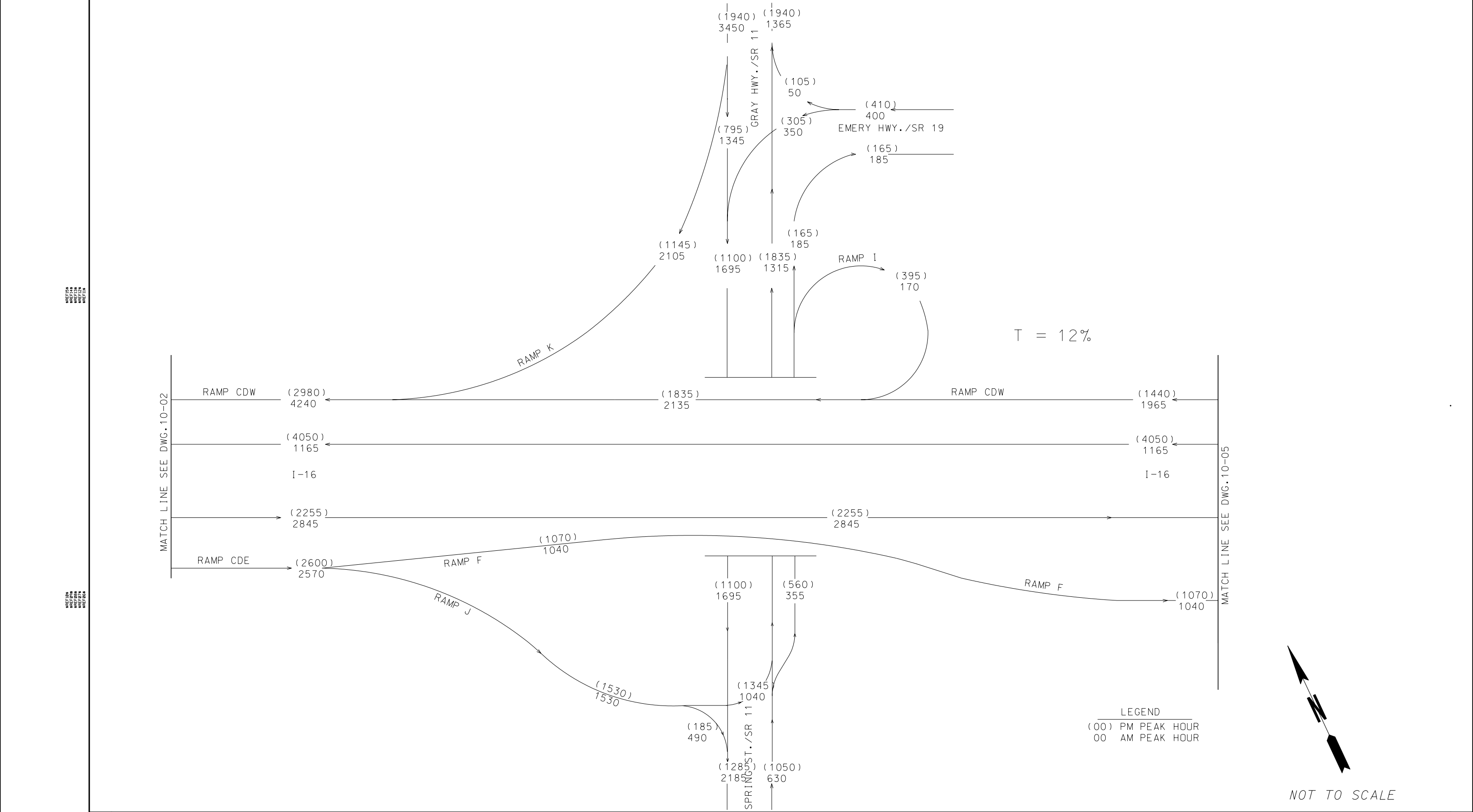
OFFICE:

TRAFFIC DIAGRAM  
PLAN

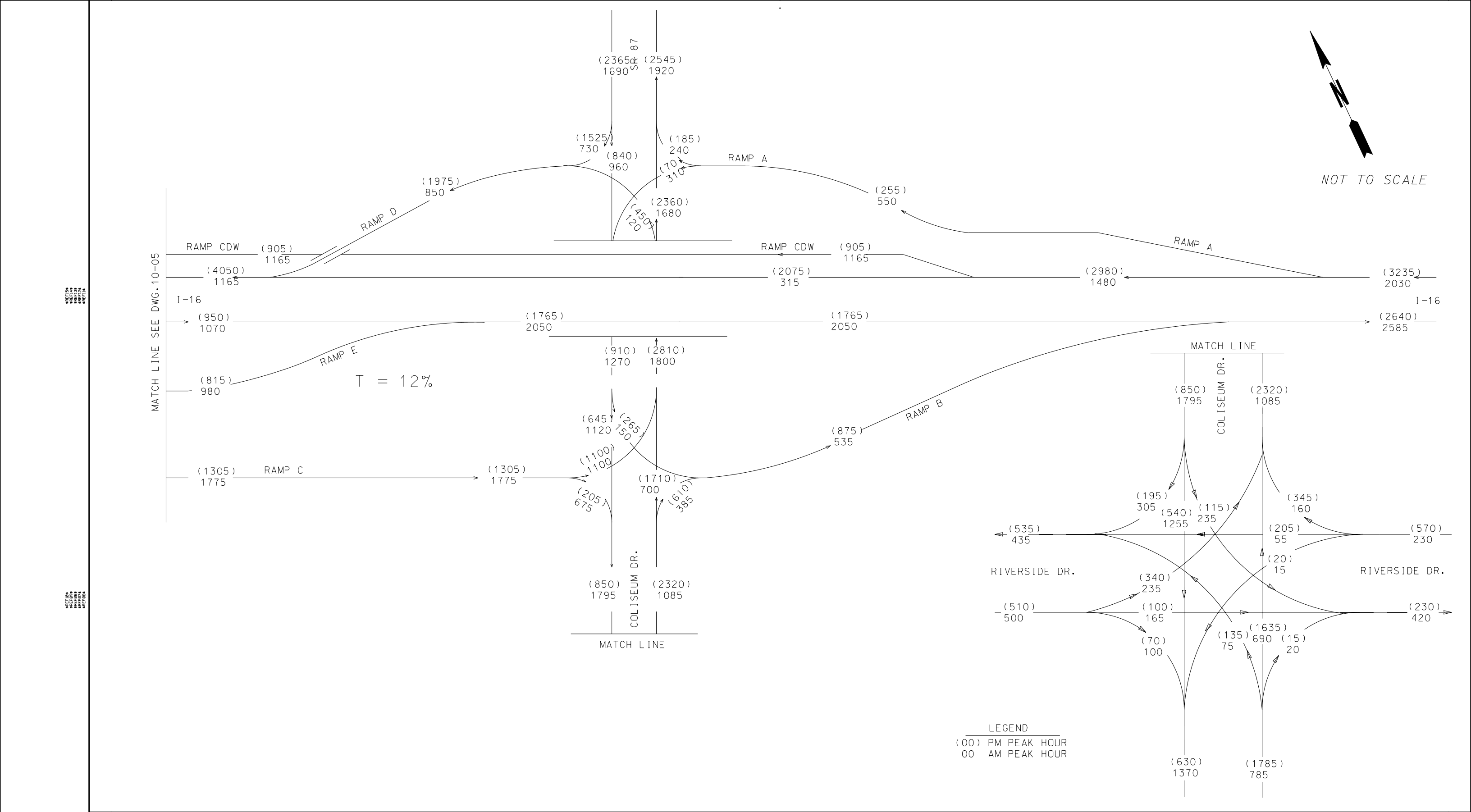
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TRAFFIC FLOW DIAGRAM

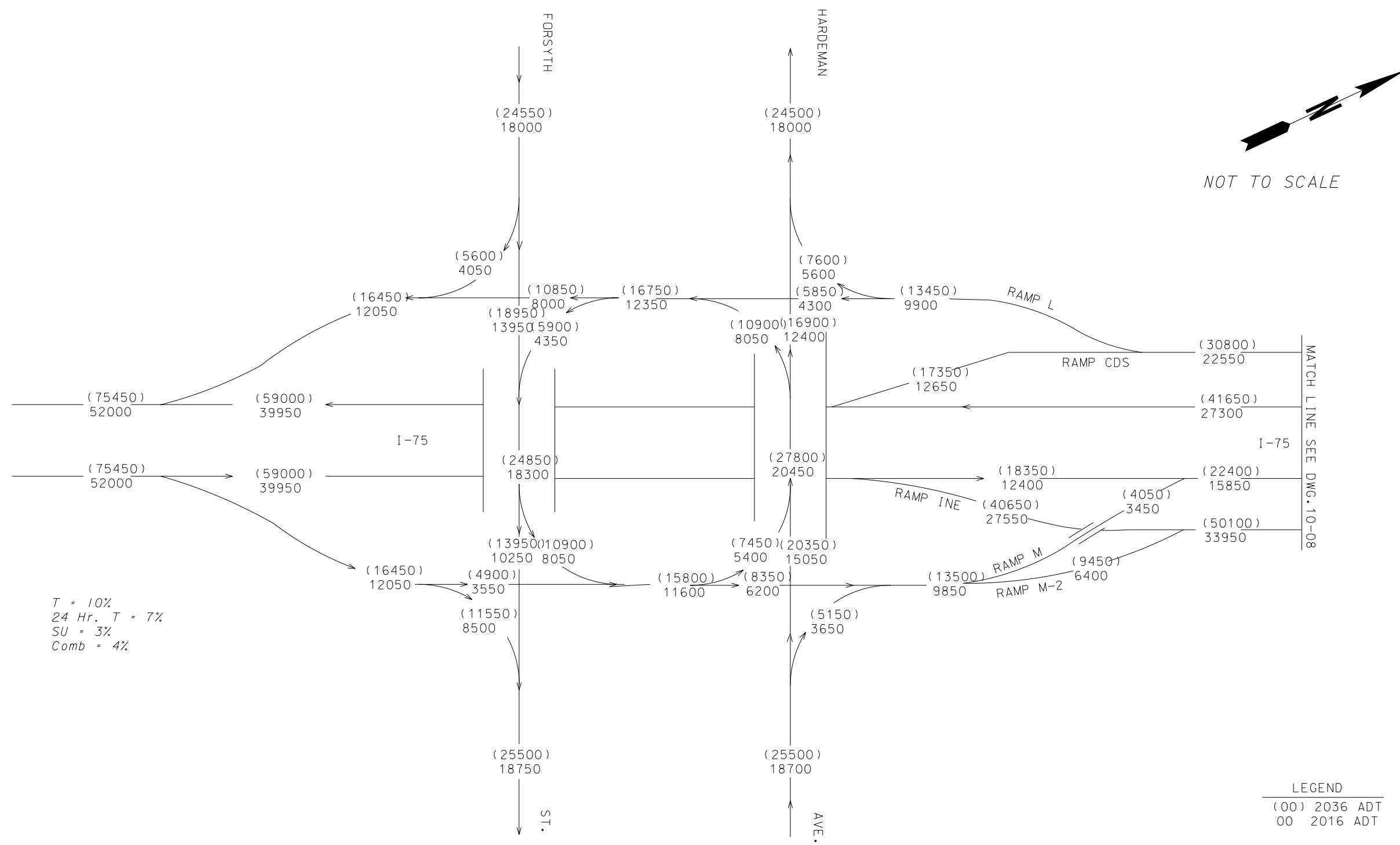
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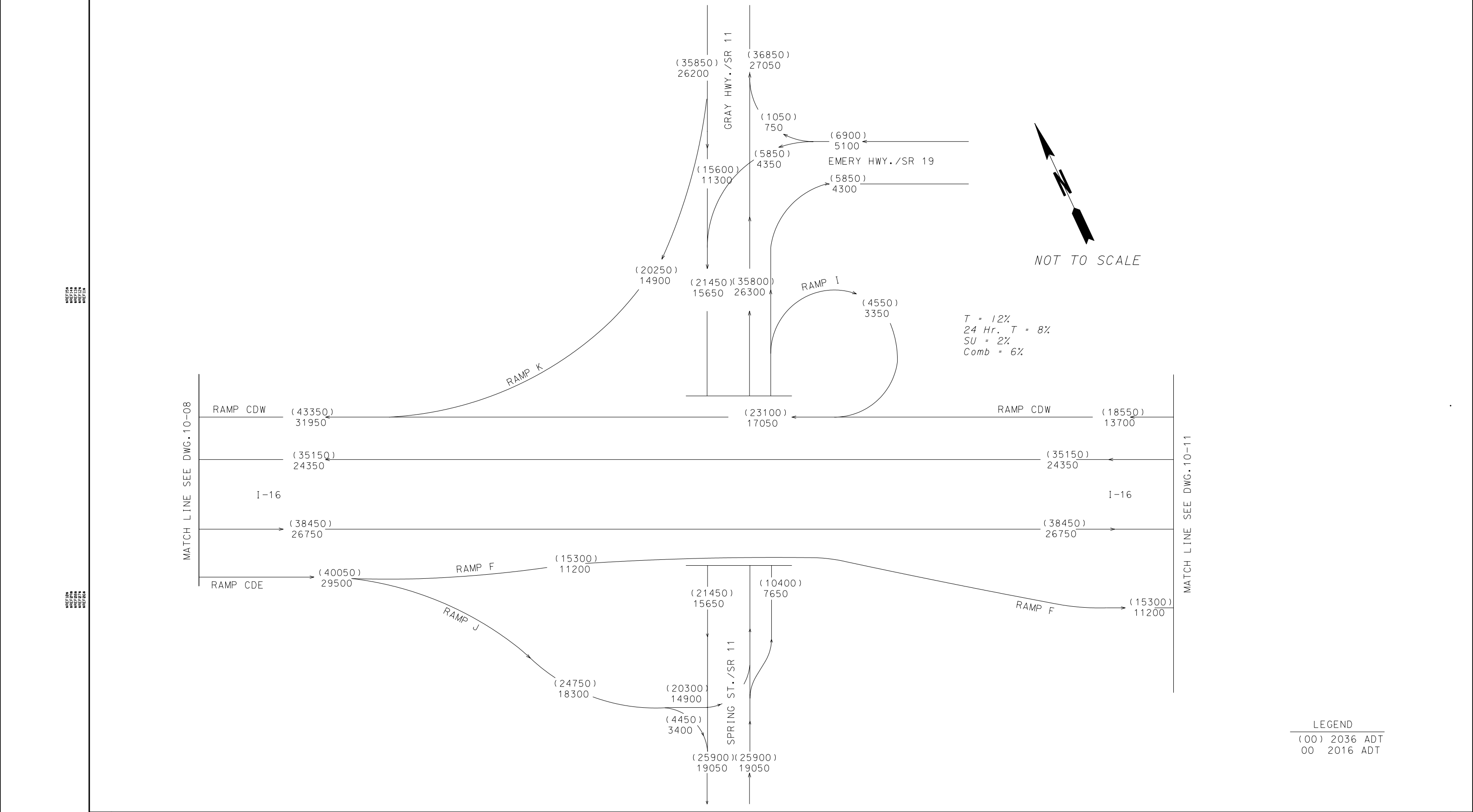






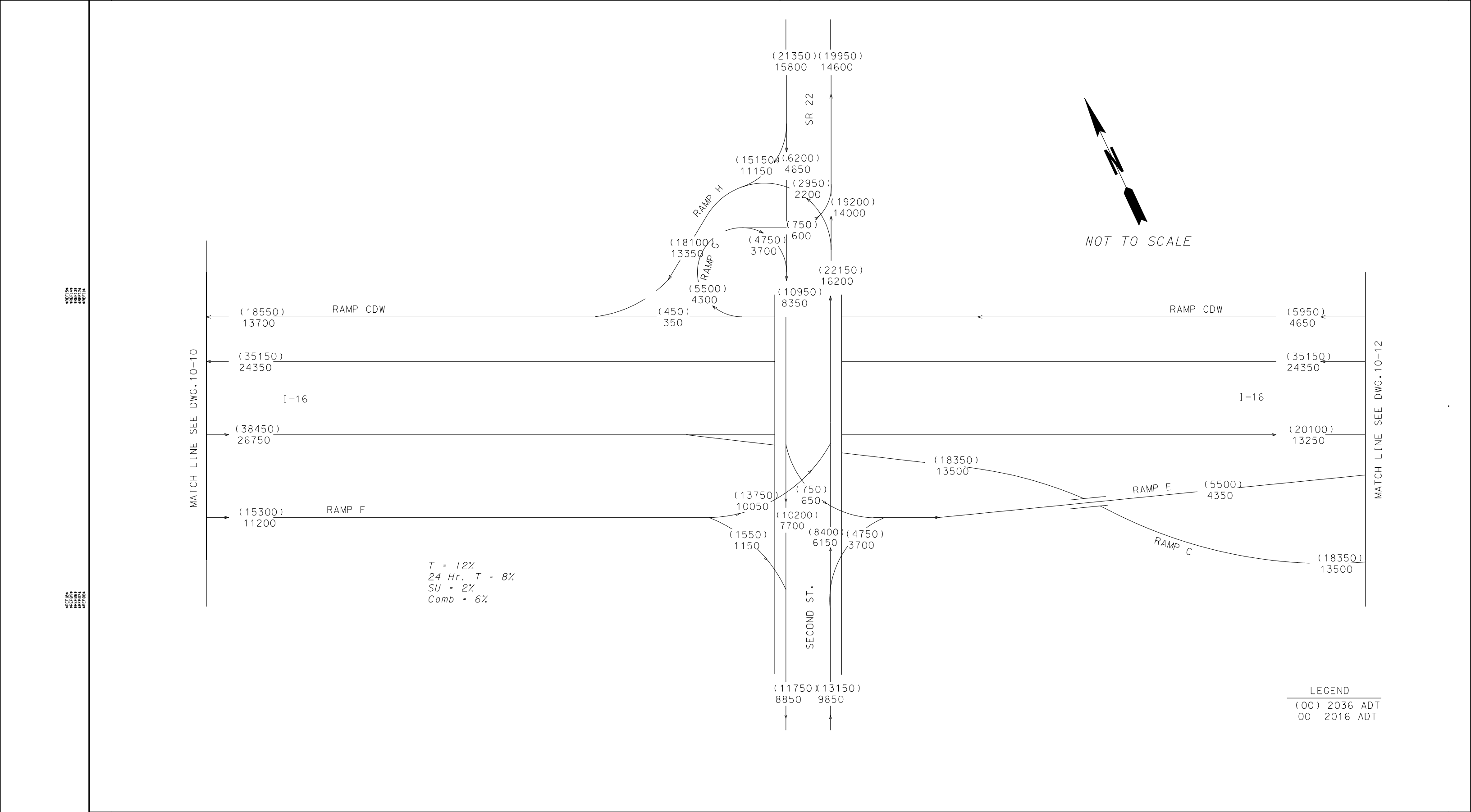


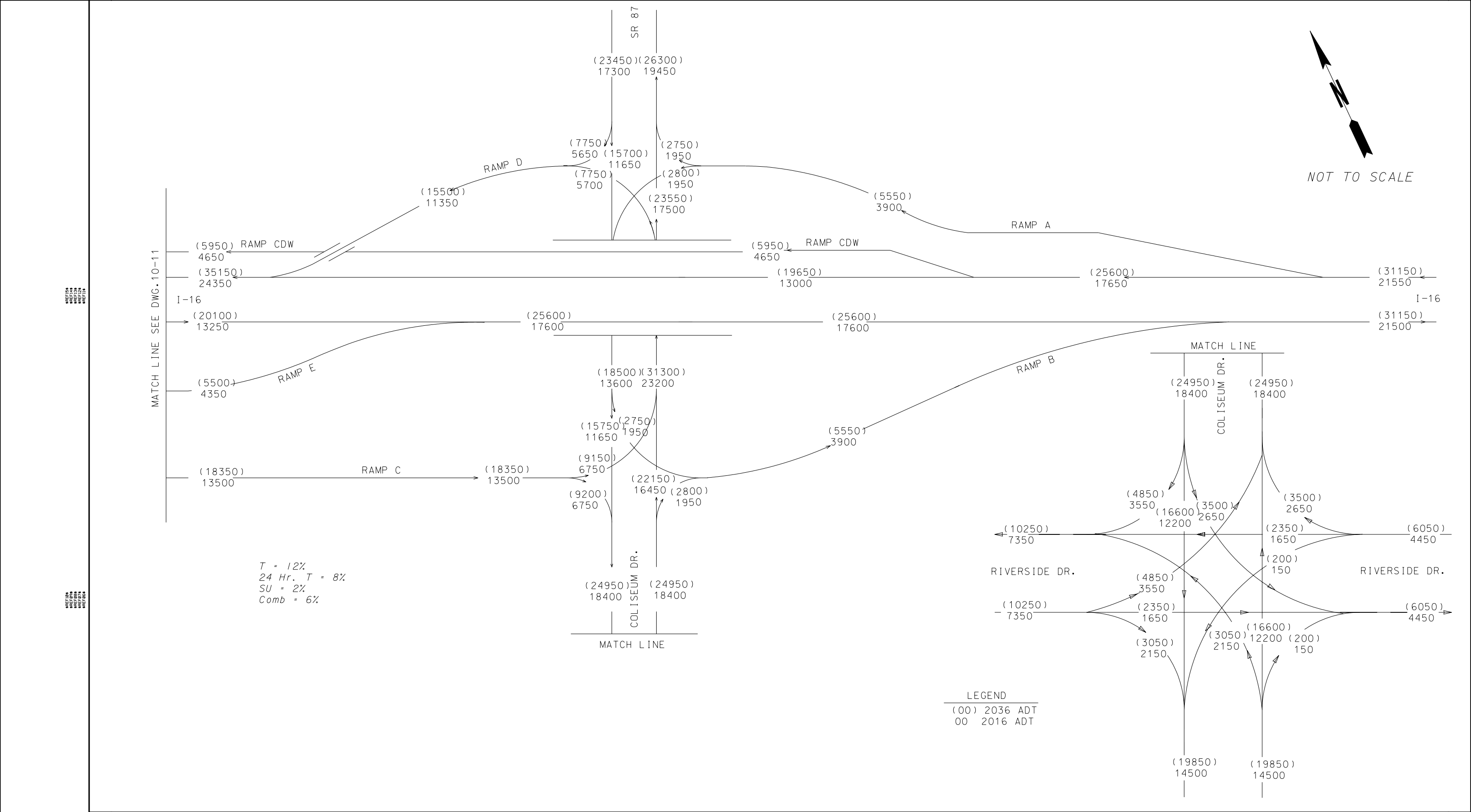
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LEGEND  
(00) 2036 ADT  
00 2016 ADT







Revised Project Concept Report

Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410

County: Bibb County

## **ATTACHMENT #6**

### **CONFORMING PLAN SCHEMATIC**



# Macon Travel Demand Model

## PI# 311400: I-75 from Pierce Ave. to I-16 Interchange

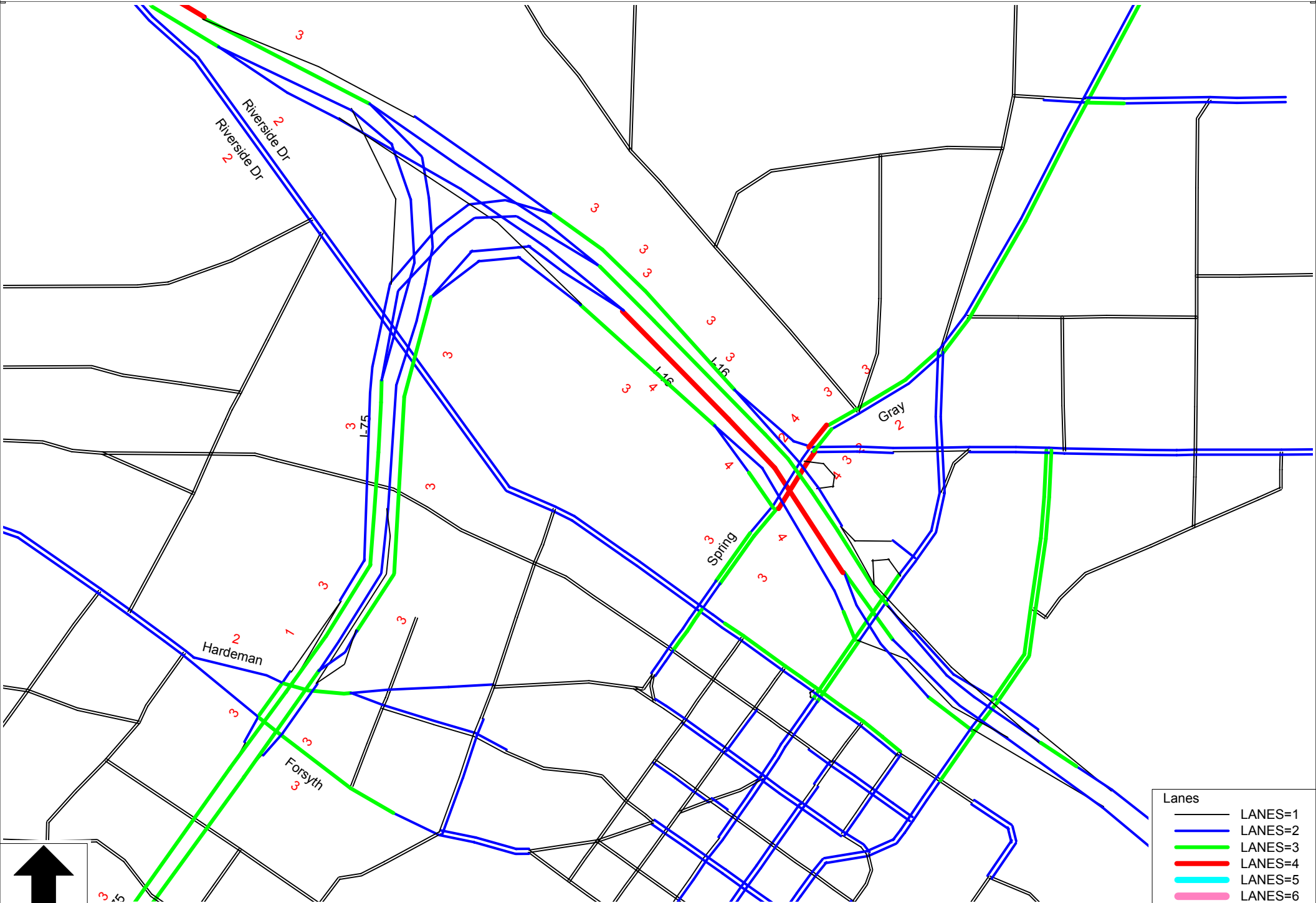


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  - LANES=2
  - LANES=3
  - LANES=4
  - LANES=5
  - LANES=6

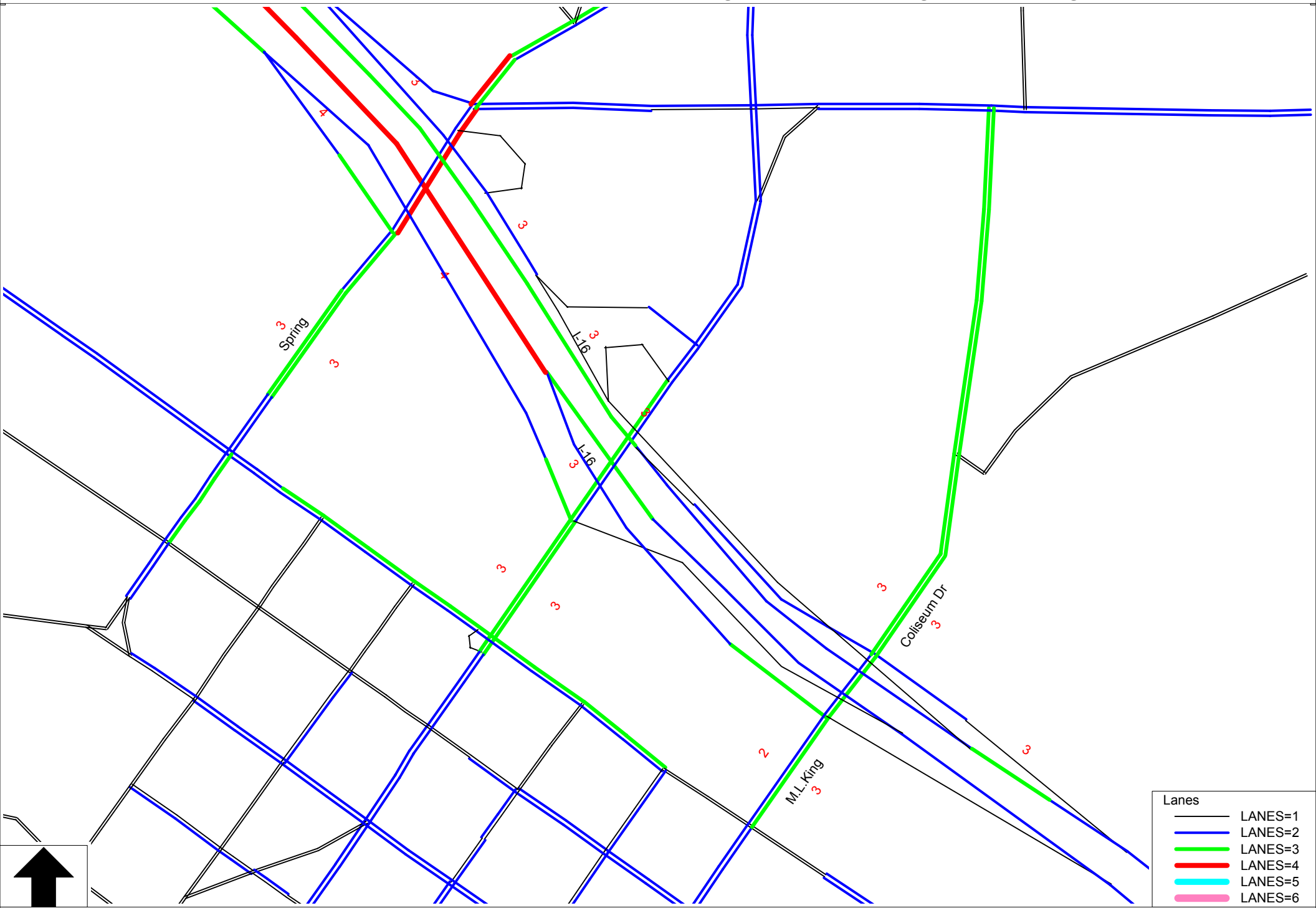


# Macon Travel Demand Model

PI# 311410: I-75 from Forsyth/Hardeman Interchange to I-16 at Spring St.



Macon 2020 Travel Demand Model  
PI# 311000 & 311005: I-16 from Spring St. to ML King Interchange



Lanes	
	LANES=1
	LANES=2
	LANES=3
	LANES=4
	LANES=5
	LANES=6



Revised Project Concept Report

Project Numbers: NHIM0-0016-01 (092), NHIM0-0016-01 (131), NHIM0-0075-02 (177), NH000-0016-01 (104)

P.I. Numbers: 311000, 311005, 311400, 311410

County: Bibb County

## **ATTACHMENT #7**

### **PROJECT PHASING MEETING MINUTES**



**Moreland Altobelli Associates, Inc.**  
2211 Beaver Ruin Road, Suite 190  
Norcross, Georgia 30071  
Phone: 770-263-5945 Fax: 770-263-0166

## MEETING MINUTES

**Project:** **I-16 / I-75 Interchange Improvements**  
**NH-IM-16-1(92) – Bibb County, P.I. 311000**  
**NH-IM-16-1(131) – Bibb County, P.I. 311005**  
**NH-IM-75-2(177) – Bibb County, P.I. 311400**  
**NH-16-1(104) – Bibb County, P.I. 311410**

**Meeting:** **Dry-Run for Macon City Council Meeting**

**Location:** **GDOT Urban Design Office**

**Prepared By:** Will Sheehan

**Prepared On:** August 28, 2008

Meeting Date	8/27/2008
MA Project No.	07516
CC:	File 07516 Attendees

ATTENDEES	ORGANIZATION	E-MAIL
Brad Hale	MAAI – Project Manager	<a href="mailto:bhale@maai.net">bhale@maai.net</a>
Will Sheehan	MAAI – Highway Design Engineer	<a href="mailto:wsheehan@maai.net">wsheehan@maai.net</a>
Todd Hill	MAAI – Environmental	<a href="mailto:thill@maai.net">thill@maai.net</a>
Ben Buchan	GDOT – Urban Design	<a href="mailto:bbuchan@dot.ga.gov">bbuchan@dot.ga.gov</a>
Chuck Hasty	GDOT – Urban Design	<a href="mailto:chasty@dot.ga.gov">chasty@dot.ga.gov</a>
Jeff Simmons	GDOT – Urban Design	<a href="mailto:jesimmons@dot.ga.gov">jesimmons@dot.ga.gov</a>
Gordon Sisk	GDOT – Urban Design	<a href="mailto:gsisk@dot.ga.gov">gsisk@dot.ga.gov</a>
Nicoe Alexander	GDOT – Urban Design	<a href="mailto:nialexander@dot.ga.gov">nialexander@dot.ga.gov</a>
Melanie Nable	GDOT – OEL	<a href="mailto:mnable@dot.ga.gov">mnable@dot.ga.gov</a>
Jonathan Cox	GDOT – OEL	<a href="mailto:jocox@dot.ga.gov">jocox@dot.ga.gov</a>

The purpose of this meeting was to prepare for the upcoming meeting with the mayor and the Macon City Council scheduled for Sept. 11, 2008 at 5:00 p.m. Mayor Robert Reichert has invited members of the design team to conduct a presentation focusing on the following two issues.

- 1) Explain and confirm that the project is no larger than necessary to accommodate the traffic volume and various traffic maneuvers.
- 2) Explain the mitigation measures for both the Pleasant Hill Neighborhood and the Ocmulgee Heritage Trail.

The meeting began with a discussion of the areas of the project in most need of safety and operational improvements before moving on to a discussion of the strategy for the upcoming meeting presentation. The key points of the meeting are as follows.

### **Problem Areas / Quick-Fix Solutions**

The design team at MAAI analyzed the accident data from 2001-2006, developed a prioritized list of these problem areas based on accident frequency, and outlined potential options for “quick fix” interim projects at these locations. A draft display mapping the accident data was used to supplement the meeting discussion. Below is a prioritized list and brief description of the problem areas that were discussed.

- *I-16 Eastbound exit to Spring St.* – Insufficient weaving distance on I-16 between I-75 merge and Spring St. exit is compounded by the traffic queuing onto the mainline from the short exit ramp. There is no obvious quick fix here. Extending the ramp reduces the weaving distance. Simply closing the interchange moves the problem to Coliseum Dr., where problems already exist, and negatively impacts businesses along Spring St. Closing the interchange at Spring St. and constructing the Second St. Interchange would somewhat alleviate the system-level operational problems, but was unpopular with the Urban Design Office. The Urban Design Office requested that the design team determine how many vehicles come from I-75 NB and exit at Spring St.





- *I-16 Westbound entrance ramp from Spring St.* – The loop ramp from Spring St. NB enters I-16 as a parallel lane and then ends abruptly (insufficient taper) hidden over a vertical curve. This movement is followed closely by the merge of the two-lane ramp from Spring St. SB, in which the inside ramp lane merges undesirably with the outside through lane. There is no obvious quick fix here either. Closing the loop ramp and providing a double left turn from Spring St. NB to the WB entrance ramp would help, but would result in negative impacts to Spring St. traffic and would require the reconstruction of the I-16 Overpass Bridge. Extending ramps towards I-75 would further reduce the insufficient weaving distance similar to the I-16 EB problem. Closing Spring St. Interchange and constructing Second St. Interchange also has same implications as noted previously.
- *I-75 Northbound / I-16 Westbound Merge* – The high-speed merge of these two system-level movements occurs on a sharp horizontal curve. The one-lane ramp from I-75 could be barrier separated from the I-16 lanes until a straight section is reached. Pavement reconstruction and a retaining wall would be necessary at a cost of approximately \$3.7 million. Most, if not all, of this work would be throwaway with the ultimate project.
- *I-75 Northbound / I-16 Eastbound Diverge* – The high-speed diverge of these two system-level movements has undesirable geometry and is somewhat hidden behind the Riverside Dr. Overpass. The movement to I-75 NB occurs on a rather sharp reverse curve, which has a history of overturned trucks. Improvements to the pavement superelevation and diagrammatic signage would help, but not solve the problem, at a cost of approximately \$1.4 million. Most, if not all, of this work would be throwaway with the ultimate project.
- *I-75 Southbound / I-16 Eastbound Diverge* – This movement is one that receives the most negative attention; however, it has less accidents than other areas of the project. The exit to I-16 EB is on the left side and is hidden over a vertical curve and behind a horizontal curve. The exit to I-16 EB could be moved north to a point where it is on a tangent horizontal section and an uphill grade. Pavement reconstruction and widening would be necessary at a cost of approximately \$2.3 million. Most, if not all, of this work would be throwaway with the ultimate project. The locals have argued that the recently improved overhead signage has made a difference in the accident frequency; however the accident data is inconclusive on this point.

These five areas comprise the two most critical safety and operational problems on the project and the three problem areas with the easiest, most obvious solutions. There are five other notable problem areas that were not discussed in depth at the meeting. The meeting consensus was for the design team to formulate a prioritized phasing plan for the project, focusing first on the more critical areas (i.e. I-16 between I-75 and Spring St.). The phasing plan could allow the project funding to be spread over a number of years, but could somewhat complicate and prolong the construction.

#### **City Council Meeting Strategy**

The primary focus of the presentation should be to effectively address the mayor's previously noted concerns regarding project size and mitigation measures. The Urban Design Office stressed that the presentation should be especially clear. The phasing plan will not be included in the presentation; however, the design team will be prepared to respond to questions about the implications of the phasing. Based on the discussion at the initial dry-run meeting, the presentation should more or less proceed as follows.

##### **1) *Explanation of Project Need and Purpose***

The deficiencies within the existing corridor should be explained along with the project goals to improve safety, relieve congestion, and improve hurricane evacuation route.

##### **2) *Concept Development Process***

The presentation should explain how the design team developed the Preferred Concept, or Alternative 9. Emphasis should be placed on any changes made as a result of public input, not excluding any potential changes that were analyzed as a result of public input such as Alternative 10. The project matrix comparing the pros and cons of each alternative should be included in the presentation. It was also recommended that the presentation include a display showing how the project footprint has changed with each alternative and why.



3) *Before / After Renderings*

The before and after renderings from the overall project display should be included in the presentation. A new rendering will be presented showing a ground-level view of the I-16/I-75 Interchange from the east (looking down I-16 WB at the river crossing).

4) *Areas of Significant Elevation Changes*

There are several locations within the I-16/I-75 Interchange where the proposed grade will be recognizably higher than the existing roadway. These locations will be shown on a display and the grade changes will be explained. The lowering of the westbound C-D road from Alternative 7 to Alternative 9 will be emphasized as this was done at the request of the locals.

5) *Proposed Mitigation Measures*

The proposed mitigation within Pleasant Hill and the Ocmulgee Heritage Trail will be presented and explained. If possible, the Pleasant Hill representatives (Peter Givens & Russell Claxton) should be invited to the meeting. Mr. Claxton should have a plan drawn of the requested Heritage Tour streetscape improvements by the scheduled meeting date. The MOA and the *de minimus* should be mentioned in the presentation.

6) *Project Misconceptions / FAQ's*

The most important issue here is to clarify all common misconceptions and address all frequently asked questions about the project before the public has the opportunity to ask questions. In past public meetings, the effectiveness of the presentations has been interrupted because of vocal audience members.

**Action Items**

- Correct before/after slides of Rodney Davis Gravesite on the website slideshow.
- Develop hand painted rendering of I-16 between I-75 and Spring St.
- Investigate project phasing options, focusing on the Spring St. Interchange.
- Determine number of vehicles utilizing Spring St. exit from I-75 NB.
- Develop presentation for City Council Meeting.
- Follow-up dry-run meeting currently scheduled for Thursday, September 4<sup>th</sup>, 1:00 p.m.



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Norcross, Georgia 30071  
Phone: 770-263-5945 Fax: 770-263-0166

## MEETING MINUTES

**Project:** **I-16 / I-75 Interchange Improvements**  
**NH-IM-16-1(92) – Bibb County, P.I. 311000**  
**NH-IM-16-1(131) – Bibb County, P.I. 311005**  
**NH-IM-75-2(177) – Bibb County, P.I. 311400**  
**NH-16-1(104) – Bibb County, P.I. 311410**

**Meeting:** **GDOT Coordination Meeting**

**Location:** **GDOT Urban Design Office**

**Prepared By:** Will Sheehan

**Prepared On:** September 25, 2008 (*Revised November 19, 2008*)

Meeting Date	9/24/2008
MA Project No.	07516
CC:	File 07516 Attendees

ATTENDEES	ORGANIZATION	E-MAIL
Brad Hale	MAAI – Project Manager	<a href="mailto:bhale@maai.net">bhale@maai.net</a>
Will Sheehan	MAAI – Highway Design Engineer	<a href="mailto:wsheehan@maai.net">wsheehan@maai.net</a>
Ben Buchan	GDOT – Urban Design	<a href="mailto:bbuchan@dot.ga.gov">bbuchan@dot.ga.gov</a>
Chuck Hasty	GDOT – Urban Design	<a href="mailto:chasty@dot.ga.gov">chasty@dot.ga.gov</a>
Nicoe Alexander	GDOT – Urban Design	<a href="mailto:nialexander@dot.ga.gov">nialexander@dot.ga.gov</a>
Jeff Simmons	GDOT – Urban Design	<a href="mailto:jesimmons@dot.ga.gov">jesimmons@dot.ga.gov</a>
Gordon Sisk	GDOT – Urban Design	<a href="mailto:gsisk@dot.ga.gov">gsisk@dot.ga.gov</a>
Melanie Nable	GDOT – OEL	<a href="mailto:mnable@dot.ga.gov">mnable@dot.ga.gov</a>

The purpose of this meeting was to discuss the “next steps” for the project, primarily in regards to the mitigation plan and the newly developed phasing concepts. The following is a brief summary of the key points of the discussion.

### Mitigation Plan

FHWA is prepared to approve the environmental document once the outstanding issues with the mitigation plan are resolved. The outstanding issues with the mitigation plan involve the following five items.

#### *1) Maintenance of the Little Richard House*

The current plan is to relocate the Little Richard House because the neighborhood has requested it. SHPO also wants the house relocated and preserved as a cultural resource. Mr. Peter Givens will need to be made aware that the owner does not want to sell the house because he uses it as a rental property. The owner will be compensated in accordance with GDOT policy as moving the “Little Richard” home and turning it into a resource center is part of the mitigation plan. Once the house is relocated, the City of Macon should be prepared to maintain it.

#### *2) The Heritage Tour Improvements*

Lighting is currently proposed as part of the Heritage Tour Streetscape Improvements. Number 11 of Appendix A used to show the improvements to be covered under the MOA provided to the Mayor and the Macon City Council mentions lighting. It is our understanding that the City of Macon would need to provide electricity to the lighting proposed as part of the maintenance for the street lights and the lighting on the bridge. The lights will not function unless electricity is provided to them.

Additionally, the Urban Design Office noted that the environmental document should clearly explain that the Heritage Tour is a conceptual plan and that it may not be feasible to construct the improvements in some areas due to existing topographical constraints. For example, the homes in some areas are too close to the street to allow wider sidewalks. On-street parking could also be affected. The Department does not currently intend to purchase Right-of-Way for the Heritage Tour. Mr. Givens will need to discuss this information with the Neighborhood. As the plan develops, Mr. Givens will be provided information as to any changes that would affect the mitigation plan or streetscaping. Mr. Givens would then relay this information to the Pleasant Hill Neighborhood.



The idea of letting the Heritage Tour Improvements as a separate project was briefly discussed. The primary benefit would be timesavings because the special environmental studies would not have to be conducted. Melanie Nable indicated that she would get clarification as to whether the streetscaping could have its own project or not.

3) *The Tax Break*

As part of the current mitigation plan, the displaced Pleasant Hill residents would be eligible for a tax break for the next 9-10 years. The GDOT has agreed to assist the residents by facilitating the paper work for the tax break. Melanie Nable indicated that the green sheet item concerning the tax break item may need to be more flexible. After meeting with Mr. Givens, it may be clearer how this green sheet commitment should be worded.

4) *The maintenance agreement with the City*

The City of Macon must approve an agreement to maintain the linear park facilities once they are built. The City Council approved the agreement in committee on Sept. 23<sup>rd</sup> and now the agreement must go to a vote before the entire Council.

5) *The deminimus*

The City must also approve the *deminimus* document stating that the project has minimal impacts to the Ocmulgee Heritage Trail and Park. The *deminimus* was tabled at the aforementioned City Council committee on Sept. 23<sup>rd</sup>.

*(After this meeting was held, the City signed both the MOA and deminimus. Two originals of both the MOA and deminimus were sent to GDOT for the Commissioner and Treasurer to sign. The Commissioner and Treasurer still need to sign both originals of the MOA and deminimus. Legal has forwarded these documents for the Commissioner and Treasurer to sign. One of the signed originals of the MOA and deminimus will be sent back to Macon once signed/processed appropriately. It was unclear if FHWA would need to submit an approval letter for the MOA or need to be cosigners or if a signature from FHWA for the environmental document would suffice.)*

Once these issues are resolved, the mitigation plan would have to be preliminarily approved by FHWA and then sent to Mr. Peter Givens to review. Once Mr. Givens and the neighborhood residents have had time to review the plan, a meeting should be scheduled with the neighborhood and the design team to discuss the next steps. An FHWA representative should also attend the meeting.

Phasing Concepts

The design team presented two phasing concepts to the Urban Design Office. The concepts addressed the safety and operational problems on I-16 EB and WB between I-75 and Spring St. This stretch of interstate has previously been established as the most dangerous on the project with its high accident rate. The following is a brief description of the two concepts.

- *I-16 Eastbound*

Under the proposed Phase 1 option for I-16 EB, the I-75 NB traffic would be routed along the currently proposed detour road and eastbound C-D road. The eastbound C-D road would be built in its ultimate location until just beyond the bridge over Spring St. The exit ramp to Spring St. would also be constructed in its final location, allowing access only for traffic from I-75 NB. The existing ramp from I-75 SB to I-16 EB would be extended along the existing I-16 EB alignment and would join the NB traffic after the Spring St. diverge and before the bridge over Spring St., thereby cutting off access to Spring St. from I-75 SB. All traffic from I-75 SB wishing to access downtown Macon would have to utilize the Coliseum Dr. exit ramp, which would be widened to provide two exit lanes. The eastbound intersection at Coliseum Dr. would be expanded to double-left turn lanes and a dedicated right turn lane. Much of the phase 1 construction would be “throw-away”; however, much of the “throw-away” would be less expensive overlay pavement.

- *I-16 Westbound*



Under the proposed Phase 1 option for I-16 WB, the loop ramp at Spring St. would most likely be elongated to move the tie-in point with I-16 WB further to the east. Other options for this movement include constructing an entrance ramp from Second St. directly to I-16 WB, similar to what is currently proposed for the ultimate condition, and/or modifying the intersection of Spring St. and the WB entrance ramp to provide a left-turn lane for NB traffic on Spring St. Additionally, the two-lane entrance ramp from Spring St. SB to I-16 WB would be realigned to taper out the outside lane of the ramp instead of the inside lane.

The Urban Design Office requested a display showing these options plus the previously presented options at the I-75 SB / I-16 EB diverge, the I-16 WB / I-75 NB merge, and the I-75 NB / I-16 EB diverge. Conceptual cost estimates should also be provided for each area, along with estimates of how long the phasing options could handle the anticipated traffic volumes.

Mr. Chuck Hasty indicated that coordinating signal timing in downtown Macon and at the ramps was something that needed to be considered as part of any of the proposed options. The signals in downtown Macon may not currently be coordinated to work together efficiently or in conjunction with the ramps. Providing ramp meters to control the flow of traffic from Spring Street was also mentioned as a possibility.

#### Miscellaneous Items

- One of the local citizens has been persistently corresponding with the OEL regarding possible mitigation for cumulative impacts to the flood plain from the original construction of I-16. Mr. Todd Hill is working on the documentation of the cumulative effects of the construction of I-16/I-75 on the levees to be included as part of the FONSI. The levees were raised 3 feet after construction of I-16/I-75.
- Mr. Ben Buchan noted that Macon City Councilman Ellington had contacted him and that they had scheduled a meeting. Mr. Buchan requested the following items for the meeting.
  - A list of the mitigation items to be maintained by the City and those not to be maintained by the City
  - The flow chart that Mr. Todd Hill had created for the Pleasant Hill displacements
  - An explanation of the project's *deminimus*
- The consultant should prepare a draft sign-off letter for the mitigation plan for FHWA. The letter should include the following items.
  - A description of the proposed mitigation measures
  - The mitigation cost estimate
  - An 11"x17" display of the plan
- If any of the relocation houses are found to have asbestos or lead, the contaminants would have to be removed before the structure could be relocated; this issue would need to be addressed in the mitigation plan.
- The history MOA and the AOE will have to be revised to include the movement of the Little Richard home and its conversion to a resource center.

#### Action Items

- Finalize the mitigation plan.
- Prepare *deminimus* information and mitigation list for upcoming meeting with Councilman Ellington.
- Show/label trail on mitigation display on west side of I-75 between First Ave. and Second Ave.
- Label 10' sidewalk on Walnut St. Bridge on mitigation display.
- Revise "Final Mitigation Concept Plan" to eliminate redundant information regarding the multi-use trail.
- Send FHWA cost estimate for mitigation plan.
- Prepare draft sign-off letter for FHWA in regards to mitigation plan.



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## MEETING MINUTES

**Project:** **I-16 / I-75 Interchange Improvements**  
**NH-IM-16-1(92) – Bibb County, P.I. 311000**  
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**NH-IM-75-2(177) – Bibb County, P.I. 311400**  
**NH-16-1(104) – Bibb County, P.I. 311410**  
**Meeting:** **GDOT Phasing Meeting with Chief Engineer**  
**Location:** **GDOT Urban Design Conference Room**  
**Prepared By:** Will Sheehan  
**Prepared On:** December 16, 2008

Meeting Date	12/16/2008
MA Project No.	07516
CC:	File 07516 Attendees

ATTENDEES	ORGANIZATION	E-MAIL
Gerald Ross Ben Buchan Chuck Hasty Nicoe Alexander Jeff Simmons Brad Hale Will Sheehan Karla Poshedly	GDOT – Chief Engineer GDOT – Urban Design GDOT – Urban Design GDOT – Urban Design GDOT – Urban Design MAAI – Project Manager MAAI – Highway Design Engineer MAAI – Traffic Engineer	<a href="mailto:bbuchan@dot.ga.gov">bbuchan@dot.ga.gov</a> <a href="mailto:chasty@dot.ga.gov">chasty@dot.ga.gov</a> <a href="mailto:nialexander@dot.ga.gov">nialexander@dot.ga.gov</a> <a href="mailto:jesimmons@dot.ga.gov">jesimmons@dot.ga.gov</a> <a href="mailto:bhale@maai.net">bhale@maai.net</a> <a href="mailto:wsheehan@maai.net">wsheehan@maai.net</a> <a href="mailto:kposhedly@maai.net">kposhedly@maai.net</a>

The purpose of this meeting was to discuss the newly developed phasing plan with Mr. Gerald Ross (Chief Engineer, GDOT). At GDOT's request, MA developed a proposal to divide the reference project into six construction phases in order to allow more flexibility in the funding of the project, which is estimated to cost in excess of \$300 million. During the discussion, the design team utilized color displays showing historical accident data, anticipated traffic data, and diagrams of the proposed phases. A Traf-Corsim animation showing the projected traffic operations for Phase 1 was also presented.

### PHASING PLAN

The meeting began with a discussion of Phases 1, 1A, & 1B, which provide solutions to the most critical operational problems within the corridor. Phase 1 improves I-16 Eastbound between I-75 and Coliseum Dr. Phase 1A improves the I-75 SB/I-16 EB diverge, the I-75 NB/I-16 WB merge, and the I-75 NB/I-16 EB diverge. Phase 1B provides no operational improvements, but consists of the mitigation items for the Pleasant Hill Neighborhood that are a key component of the project.

#### Phase 1

While Phase 1 solves the critical weaving problems on I-16 Eastbound, it also has some drawbacks. To improve the weaving sections, two existing ingress/egress movements are eliminated. Access to Spring St. from I-75 SB is eliminated, and the entrance ramp from Spring St. Northbound to I-16 Eastbound would be closed due to its close proximity to the Coliseum Drive exit. As a result of these changes to the existing network, much of the Spring St. traffic volume would be diverted to Coliseum Dr. causing capacity problems and failing levels of service at the eastbound ramp intersection. In order to improve the anticipated traffic operations at the I-16 EB / Coliseum Drive ramp terminal, Phase 1 would improve the eastbound approach by providing dual left-turn and right-turn lanes. A dedicated right-turn lane along NB Coliseum Drive onto the eastbound entrance ramp is also needed, but is not feasible due to the proximity of the river bridge. Phase 1 would also widen the eastbound exit ramp to Coliseum Dr. from one to two lanes.





Phase 1 essentially improves the safety and operations on the I-16 EB mainline at the expense of slightly decreased operations on Coliseum Dr. and reduced access to/from Spring St. The GDOT attendees agreed that this tradeoff was beneficial to the overall system and that the pros outweighed the cons.

Phase 1 would cost approximately \$30 million and would consist of a moderate amount of “throw-away” expense in the form of temporary pavement. Phase 1 would also require that the Eastbound C-D Bridge over Spring St. be constructed wider than originally proposed. It would need to accommodate three lanes of system-level traffic during Phase 1, but only two lanes of C-D traffic once Phase 4 is constructed under the master plan.

#### Phase 1A

Phase 1A addresses operational problems at several of the key system-level merge/diverge areas as well as at the westbound entrance ramp(s) from Spring St. Phase 1A proposes to shift both the I-75 SB/I-16 EB diverge and the I-75 NB/I-16 WB merge to a straight section of I-75 mainly to improve safety, but with operational benefits. Currently, these merge/diverge points are located around sharp horizontal curves with the SB/EB diverge also being located over the crest of a hill. Phase 1A also proposes to improve the signage and superelevation at the I-75 NB/I-16 EB diverge where there is a high occurrence of overturning trucks.

At the Spring St. Interchange, Phase 1A would close the loop ramp to I-16 Westbound and add a left-turn movement onto the remaining westbound entrance ramp. This two-lane ramp would be restriped to taper out the outside lane, instead of merging the inside ramp lane with the outside interstate lane as it currently exists. The removal of the loop ramp reduces the number of successive access points and merge movements on the mainline, improving safety and operations. Phase 1A is estimated to cost approximately \$7 million and consists entirely of “throw-away” construction, which would be demolished and reconstructed in later phases.

#### Phase 1B

Phase 1B consists of the Pleasant Hill Mitigation items. This phase should be constructed as one of the very first phases as it is an important commitment from the GDOT to the neighborhood. The design team also notified the Chief Engineer that the official mitigation plan document had been approved and signed by Pleasant Hill’s representative, Mr. Peter Givens.

The design team was instructed to move forward and develop separate plan sets for Phases 1, 1A, & 1B. The consultant was also directed to develop right-of-way and construction costs for each phase, as well as estimates for construction time for each phase, and a preferred phasing sequence. Right-of-Way authorization should only be obtained for those phases of the project for which the plans are actually being developed at this time – Phases 1, 1A, & 1B.

#### MISCELLANEOUS ITEMS

- It was suggested that a dedicated pedestrian bridge over the river be constructed in lieu of the converted detour bridge because the proposed detour bridge built in Phase 1 would be under traffic until Phase 4, which could be many years. This dedicated pedestrian bridge could be included with the Pleasant Hill Mitigation in Phase 1B. The design team will also look at including the proposed sound barriers with the earlier phases, even if it means constructing them temporarily and then replacing them in later phases.
- The GDOT will wait until the environmental document is approved by FHWA in February/March before programming the funding for the phasing plan.

#### ACTION ITEMS

- Proceed with plans for Phases 1, 1A, & 1B.
- Develop construction & right-of-way costs for each phase.
- Develop construction duration estimates for each phase.
- Develop preferred phasing sequence.
- Continue with traffic analysis for each phase.



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## MEETING MINUTES

**Project:** **I-16 / I-75 Interchange Improvements**  
**NHIM0-0016-01(092) – Bibb County, P.I. 311000**  
**NHIM0-0016-01(131) – Bibb County, P.I. 311005**  
**NHIM0-0075-02(177) – Bibb County, P.I. 311400**  
**NH000-0016-01(104) – Bibb County, P.I. 311410**

**Meeting:** **GDOT Phasing Meeting**

**Location:** **GDOT Urban Design Huddle Room 1**

**Prepared By:** Will Sheehan

**Prepared On:** October 7, 2009

Meeting Date	10/7/2009
MA Project No.	07516
CC:	File 07516 Attendees

ATTENDEES	ORGANIZATION	E-MAIL
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The purpose of this meeting was to discuss the concept report, Interchange Modification Report (IMR), design variances/exceptions, and the project phasing plan. An aerial display showing the project phases and a plan-and-profile showing the Phase 1 overpass at Spring St. were used as visual aids. The following is a brief summary of the key points of the discussion.

- An updated version of the concept report and IMR were submitted at the beginning of the meeting. MA noted that they would email the Urban Design Office pdf versions of the concept report and IMR and a formal response to the GDOT comments including an explanation as to why the 2005 base year levels of service are different between the 2007 IMR and the 2009 IMR. MA explained that Corsim was used for the initial 2007 IMR analysis, while HCS was used for the later 2009 IMR at the request of FHWA.
- The concept report for this project does not address the proposed phasing plan. It focuses on the ultimate build-out.
- MA is currently working on the preliminary plans for Phase 1 of the overall improvements. Phase 1 focuses on improving the I-16/Spring St. Interchange, which was determined to have the highest accident rate of any area on the project. The improvements for Phase 1 extend along I-16 EB from I-75 to Coliseum Dr. and also include I-16 WB at Spring St.
- There are several design issues related to the fact that the previously designed 45-mph eastbound collector-distributor road will carry 55-mph interstate traffic from the beginning of Phase 1 until the interstate traffic is transferred to its proposed permanent alignment in Phase 4. The 45-mph design would be sufficient to carry interstate traffic for a temporary period of time; however, the design becomes less viable the longer it is in service for interstate traffic. The speed-related design issues are described in the following.
  - Two-foot wide shoulders are proposed on sections of this detour route that were originally intended to temporarily maintain interstate traffic during construction staging operations related to the master plan. The section of roadway with sub-standard shoulder widths is approximately 2700-ft long and extends from the beginning of the detour at the north-to-east split until just across the river, including the bridge to be converted to a pedestrian river crossing. It should also be noted that the existing I-16 EB Bridge over the





river currently has 2-ft shoulders, which are not believed to be the cause of any operational or safety problems.

- Meeting 55-mph design for the I-16 EB mainline (the future EB CD road) with phase 1 would require re-design of the profile and SE transitions. Modifying the profile would require affect the bridge over the railroad and the Spring St. Overpass. It would also result in a low point (sag) occurring near the end of the eastbound viaduct bridge, which would be mitigated with increased drainage measures.

If phase 1 construction is to be left in-place for an extended period of time (i.e. – the remaining phases are delayed), the design should either be modified or design exceptions/variances approved for the profile and shoulder widths. MA will wait for guidance from GDOT before making any changes to the design.

- In regards to the phasing sequence, Phases 1 thru 3 could all start construction at the same time as they are independent of any other phase. Phase 3 obliterates Phase 1A, so 1A would need to come before three. Phase 1A is a temporary fix, which is located completely within the existing right-of-way, and is entirely “throw-away”. Phases 4 thru 6 are dependent on other phases as described in the MA’s I-16/I-75 Phasing Outline, dated February 27, 2009.
- The programming of the different construction phases was discussed briefly. Mr. Nicoe Alexander will consult with Office of Planning to determine whether or not new PI numbers need to be established for the individual phases, and try to determine what the schedule/programming will be for the new project phases.
- Regarding the right-of-way acquisition for the phases, the meeting attendees discussed how it should be done one of two ways. All of the right-of-way for the entire project could be acquired at once before any construction begins; this would require one large set of right-of-way plans. Or the right-of-way could be acquired separately for each phase, which would require several smaller sets of right-of-way plans (one for each phase). If the latter method is employed, the design team should ensure that, for a particular parcel, all of the right-of-way that will be needed for the entire project is acquired at once during the earliest phase that impacts the parcel; this will efficiently avoid having to deal with the same property owner multiple times.

#### ACTION ITEMS

- Design team to develop programming plan for construction phases after consulting with Office of Program Delivery and Office of Planning.
- Design team to determine method of right-of-way acquisition.
- GDOT Urban Design Office to check on status of FEMA approval for river hydro study and culvert hydro study.
- MA to label design exceptions/variances on overall phasing plot and submit to the Urban Design Office.
- MA to provide updated copies of design exception/variance reports to the Urban Design Office.
- MA to provide formal responses to IMR comments via email to Urban Design Office.
- MA to provide Urban Design Office with pdf versions of current IMR and concept report.